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The school administrator's leadership is an important factor in the integration of instructional technology into the academic program of the school. A good model for how an effective principal leads a technology initiative is needed. This in-depth case study examines the effect of a principal's leadership on the implementation of a technology initiative in what has been recognized as an exemplary school for effective technology use. Interviews, observations, and document reviews were conducted to gain insights into the principal's role and his influence on the school's technology integration.

Results show that this principal was a key factor in the success of the school's technology integration. He identified teacher leaders who developed as technology leaders and worked with them in all aspects of the implementation. The faculty worked collaboratively to develop and achieve a shared vision where technology is seamlessly integrated into the instructional program. The principal created a positive environment in the school by modeling enthusiasm for the vision, focusing on the best for students, and supporting the staff. Together they developed an exemplary program where technology is used effectively to enhance teaching and learning.

"TOUCHING TOMMOROW WITH TECHNOLOGY": A CASE STUDY OF THE IMPACT OF EFFECTIVE SCHOOL LEADERSHIP ON AN EXEMPLARY TECHNOLOGY INTEGRATION INITIATIVE

by

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Approved by

_____
Committee Chair

To David G. Armstrong, who encouraged me to pursue this degree. Unfortunately, he passed away before its completion, but I know he is sharing in my success.

APPROVAL PAGE

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CHAPTER I

INTRODUCTION

The Setting

> Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop away from you like the leaves of Autumn (Muir, 1901, p. 56).

I left North Wilkesboro one morning in late summer and headed north on highway #421. After crossing Lewis Fork Creek, there is a sharp curve. Then, on the left, is a panoramic view so spectacular, it always takes my breath away. There are scenic glimpses of the majestic North Carolina Mountains from Wilkes County, as you travel under the Blue Ridge Parkway and cross the Eastern Continental Divide. But, none are as awe-inspiring as this magnificent view. There is no other place in the state that fills me with more wonder or makes me feel closer to nature. I am inspired to utter a prayer of thanks for the surrounding beauty. No matter how many times I round that curve, I am always awestruck. The beauty and tranquility seem to be a powerful force that draws me in and moves me to a level of comfort and peace. The breath-taking views surround me as I continue my journey to West Jefferson, in beautiful Ashe County. I understand why people raised in this area tend to stay. The people who work at Westwood Elementary School confirm this notion since most of them are from the Jefferson community. They left to go to college and returned to their roots to spend the rest of their lives working in their home community. This is where my study begins.

The purpose of this case study of Westwood School is to describe how the principal's leadership affected the implementation of the school's instructional technology initiative. I will describe in detail how the principal led and why Westwood gained the reputation of an exemplary technology school.

The Community

Westwood Elementary School is located on highway #221, upon entering the small town of West Jefferson, North Carolina. Along the fourteen mile stretch of winding road from the intersection with highway #421, is a bucolic view typical of this rural northwest corner of the state. The area is known as the "High Country", with its towering peaks of the Blue Ridge Mountains. My first visit to West Jefferson was in late summer. The Mountain Laurel and Rhododendron were in full bloom. Their pink flowers were a sharp contrast to the green of the grasses and trees of the valley. On the next visit, fall had begun to bring a touch of color to tree-covered slopes. The warm, sunny days brightened the vistas, while the evenings brought cool, fresh air. As autumn progressed, the colors grew richer and resembled a canvas with splashes of yellow, orange, and crimson interspersed with the greens of the White Pines and Fraser Firs. The different elevations of the surrounding peaks offered varying shades of color. The last visit to Westwood was in late fall. As I traveled down the road once more, I looked out where the leaves had fallen and saw a different, but still picturesque view of the cows and horses grazing with Christmas tree farms in the distance. The air was colder and there were snow flurries in the evening. The ground was covered in the morning, creating a postcard panorama

surrounding the school. Each season has its own beauty in this land of mountains, forests, and rivers.

West Jefferson and its twin, Jefferson, are quaint, peaceful communities with warm, friendly people. This was true of the first citizens I met in the visitor center, as well as the servers in the restaurants and the employees in the hotel. They are proud of their historical community. Jefferson, named for Thomas Jefferson, is the oldest incorporated town in the High Country. It was incorporated in 1799 and is the county seat. West Jefferson was incorporated in 1915 and is now the largest town in the area (The Ashe County Economic Development Commission, 2004). Today, West Jefferson has an arts district and numerous shops and restaurants. However, it is still a small town and has maintained its classic small town charm. The mountain culture is reflected in its music, food, crafts, hospitality of its people, and schools.

Ashe County Schools

Westwood is one of the Ashe County Schools, a Title I school district due to the high poverty of this remote area of North Carolina. The percentages of students in each demographic group are: 52% male, 48% female, 94% white, 2% black, and 4% Hispanic. Ashe County has one high school, one middle school, and three elementary schools serving 3,288 students taught by 235 teachers. The average school and class sizes are comparable to those of the state. The percentage of students in each grade scoring at or above grade level on the ABCs End-of-Grade Tests was higher than the state except in grade 3 math which was .9 % lower, grade 4 math which was 2% lower, and grade 5 math which was 1.7% lower. All other reading and math scores for grades three through

eight exceeded the state's percentage. The overall percentage of students' scores at or above grade level was 87.9 in reading compared to 84.9 in the state and 70.1 in math compared to 63.4 in the state. The qualifications of teachers and administrators reflect those of other schools in the state. Westwood Elementary School, one of Ashe County Schools, is located just outside of West Jefferson. I am interested in Westwood because of its technology initiative, the result of a three year IMPACT grant from the North Carolina Department of Public Instruction.

The IMPACT Grant

In 2003, Westwood was one of 11 North Carolina schools out of 49 selected to receive an IMPACT grant from the Instructional Technology Division of the North Carolina Department of Public Instruction. The 49 schools were eligible based on federal criteria of high technology need. This competitive grant is funded from federal Title II, Enhancing Education through Technology (EETT) funds that are allocated to state education agencies through the No Child Left Behind legislation (IMPACT Model Schools, 2003).

The goals of the IMPACT grant are to provide students with access to appropriate and current technology in their classrooms, to train teachers to select and use the technology to effectively integrate it into their teaching, and to promote teacher collaboration in developing thematic units. The units of instruction are to be technology enhanced and based on the North Carolina Standard Course of Study. The overarching goal of the IMPACT grant is to improve student achievement and to prepare technology literate students by the eighth grade. Funds enhance the technology program by

supporting personnel, resources, access, professional development, and instruction for students (IMPACT Model Schools, 2003).

The grant is based on IMPACT: Guidelines for Media and Technology Programs, a document describing the set of standards for North Carolina schools to develop and maintain quality media and instructional technology programs. The document is based on current research and is aligned with the North Carolina Educational Technology Plan and national standards in School Library Media and Instructional Technology. The original IMPACT document was released in 2000 and then revised in 2005. It serves as a foundation for 21st century education, preparing students with the necessary skills for the future world of work.

The guidelines for media and technology programs presented in the document are part of the overall vision of North Carolina Public Schools for a high quality education. The document reflects the importance of school library media and instructional technology as they provide an infrastructure that supports teaching and learning. This plays an integral role in student achievement, as well as school reform initiatives. The goal of the IMPACT guidelines is to impact teaching, learning, motivation, and student achievement and involves the entire staff in planning the instructional program. It focuses on quality resources and state-of-the-art technology for expanding, supporting, and complementing learner-centered classroom instruction. The importance of collaboration among all faculty with students and parents to integrate media and technology is stressed. In order to contribute to successful teaching and learning, the IMPACT model states that

media and technology programs should include collaboration, information access, staff development, and public relations (IMPACT Model Schools, 2003).

As part of the qualifying process, Westwood conducted an extensive self-study, participated in a comprehensive planning process, and developed a vision for the school. Westwood participated in a formal and continuous evaluation process throughout the grant in order to meet federal guidelines for the state grant renewal.

Each of the eleven schools that were awarded an IMPACT grant received up to $450,000 each year over a three-year period to enhance their technology program. The annual grant renewals were based on the school's implementation, evaluation, and performance. As an IMPACT model school, Westwood was required to follow EETT budget guidelines that specified that 25 % of grant funds be spent on professional development. The remaining funds could be used for other technology – related purposes, such as hardware, software, connectivity, or personnel. North Carolina required that schools receiving the grant must also participate in an external evaluation and a summer week-long academy each year. The state also required a technology facilitator and assistant to be hired at each IMPACT school in order to integrate the media and technology programs. Flexible access to the library and computer labs was to be established. Collaborative planning between the media and technology specialists and teachers was an additional requirement. The school principal was expected to support the grant by providing time and resources for teachers (IMPACT Model Schools, 2003).

Westwood has now completed the three years of the IMPACT grant. According to the Director of the Instructional Technology Division of the North Carolina Department

of Public Instruction, Westwood's implementation was very successful (F. Bradburn, personal communication, 2003). It is the principal's role in the success of this technology initiative at Westwood that is the focus of my study.

The School

Westwood is an attractive, new school in its third year of operation. It is nestled on a hill in a valley with a backdrop of mountain slopes. Christmas tree farms and fields of wildflowers surround the yard. The school opened in the fall of 2004, the result of a merger between Fleetwood Elementary, a school of 196 students in rural Fleetwood and West Jefferson Elementary, with a population of 344 students. Westwood was scheduled to be completed in the fall of 2003; however, due to inclement weather, opening was delayed until the following fall. In the meantime the schools operated as one school in two locations (K. McClure, personal communication, August 8, 2006).

The first year Westwood School was open, in the fall of 2004, it housed 606 students in pre-kindergarten through sixth grades (IMPACT Evaluation Report, 2005). The population is currently around 650 students in kindergarten through sixth grade. The pre-kindergarten is now housed elsewhere in order to make additional classrooms available for Westwood's growing student population. There are plans to build an additional two classrooms onto the building for the next school year (J. Gregory, personal communication, September 27, 2006).

Westwood is one of the Ashe County Schools, a Title I school district due to the high poverty of this remote area of North Carolina. Though the majority of students at Westwood are White, the Hispanic enrollment is increasing steadily and is now classified

as a sub-group for the No Child Left Behind legislation (J. Gregory, personal communication, September 27, 2006). As of May 2006, a *School Information Management System Membership Report* indicated there were 555 white students, 37 Hispanic students, 3 Black students, and 19 students classified as multi-racial (2006). For purposes of this study, the terms Black and African American are used interchangeably, as are Hispanic and Latino.

First Year of Grant

2003-2004

The first year of the IMPACT grant at Westwood, 2003-2004, was when the new school was not yet completed. Westwood functioned, however, as a single school housed in separate school facilities known as Fleetwood and West Jefferson. This was the first year of the merger, yet Westwood remained in the old locations.

According to the State Report Card (2004) during that first year, Fleetwood had 196 students in grades kindergarten through six. At that time Fleetwood had 14 classroom teachers. Table 1 describes the Fleetwood teachers compared to other teachers in North Carolina schools with similar grade ranges.

Table 1

Fleetwood Teachers

Teachers with a clear North Carolina teaching license	100% Fleetwood 90% State
Classes taught by "Highly Qualified"	71% Fleetwood

teachers, as defined by federal law	88 % State
Teachers with an advanced college degree (master's or doctoral)	29% Fleetwood 26% State
Staff with National Board Certification	1 Fleetwood 3 State
Teachers having 0-3 years teaching experience	21% Fleetwood 22% State
Teachers having 4-10 years teaching experience	14% Fleetwood 28% State
Teachers having 10 or more years teaching experience	64% Fleetwood 50% State

Note. From the *NC School Report Card* for Westwood Elementary School 2004-2005, by the North Carolina Department of Public Instruction, 2005

That same year, Fleetwood received the designation of Honor School of Excellence, Expected Growth from the North Carolina Department of Public Instruction. This meant that at least 90% of the students tested performed at grade level according to the state's ABCs tests and that expected student growth was met. The school met its adequate yearly target goals under the federal No Child Left Behind, meeting all 13 of its target goals (NC School Report Cards 2003-2004, 2004).

The School Safety and Access to Technology report for 2003-2004, the first year of the grant, indicates that the number of students per instructional computer at

Fleetwood was 2.42 compared to 3.48 in schools with the same grade range in the state. Since all computers had Internet connectivity, it was also reported that the number of students per Internet-connected computer was 2.42 compared to 3.78 in the state. The percentage of classroom computers connected to the Internet was 100% compared to 97.8 in comparable schools in the state (2004).

West Jefferson was larger than Fleetwood, but similar in most other respects. According to the state report card (2004) during the first year, West Jefferson had 344 students in grades kindergarten through 6. At that time, West Jefferson had 25 classroom teachers. Table 2 describes the West Jefferson teachers compared to other teachers in North Carolina schools with similar grade ranges.

Table 2

West Jefferson Teachers

Teachers with a clear North Carolina teaching license	92% West Jefferson 90% State
Classes taught by "Highly Qualified" teachers, as defined by federal law	93% West Jefferson 88 % State
Teachers with an advanced college degree (master's or doctoral)	32% West Jefferson 26% State
Staff with National Board Certification	7 West Jefferson 3 State
Teachers having 0-3 years teaching	20% West Jefferson

experience	22% State
Teachers having 4-10 years teaching experience	28% West Jefferson 28% State
Teachers having 10 or more years teaching experience	52% West Jefferson 50% State

Note. From the *NC School Report Card* for Westwood Elementary School 2004-2005, by the North Carolina Department of Public Instruction, 2005

West Jefferson received the designation of Honor School of Excellence, High Growth from the North Carolina Department of Public Instruction. This meant that at least 90% of the students tested performed at grade level according to the state's ABCs tests. The distinction of high growth meant that student growth exceeded expectations. The school met its adequate yearly target goals under the federal No Child Left Behind Act, meeting all 13 of its target goals (NC School Report Cards 2003-2004, 2004).

The School Safety and Access to Technology report for 2003-2004 indicates that the number of students per instructional computer at West Jefferson was 2.23 compared to 3.48 in schools with the same grade range in the state. Since all computers had Internet connectivity, it was also reported that the number of students per Internet-connected computer was 2.23 compared to 3.78 in the state. The percentage of classroom computers connected to the Internet was 100% compared to 97.8 in comparable schools in the state (2004).

In summary, during the first year of the IMPACT grant, Westwood functioned as a single school in two locations. Fleetwood was much smaller than West Jefferson; however, the faculty qualifications were similar. According to state report cards, both schools were named Honor Schools of Excellence by the North Carolina Department of Public Instruction. Fleetwood achieved expected student academic growth, while West Jefferson exceeded its expectations and was designated a high growth school.

Second Year of Grant

2004-2005

During 2004-2005, the second year of the grant, but the first year in one building, Westwood, had 42 classroom teachers. Table 3 describes the Westwood teachers compared to other teachers in North Carolina schools similar to Westwood.

Table 3

Westwood Teachers 2004-2005

Teachers with a clear North Carolina teaching license	98% Westwood 93% State
Classes taught by "Highly Qualified" teachers, as defined by federal law	87% Westwood 92 % State
Teachers with an advanced college degree (master's or doctoral)	36% Westwood 26% State
Staff with National Board Certification	10 Westwood 4 State

Teachers having 0-3 years teaching experience	17 Westwood 23 State
Teachers having 4-10 years teaching experience	26 Westwood 28 State
Teachers having 10 or more years teaching experience	57 Westwood 49 State

Note. From the *NC School Report Card* for Westwood Elementary School 2004-2005, by the North Carolina Department of Public Instruction, 2005

An *Impact Evaluation Report* indicated that in 2004-2005 exceptional children were served by 4 teachers: one taught in a self-contained classroom, two worked with small groups and with regular classroom teachers, and one served academically and intellectually gifted students. There was one literacy coordinator and a full-time English as a Second Language specialist. After school tutoring offered opportunities for remediation (2005).

Westwood was designated as an Honor School of Excellence with High Growth, based on its performance on the state's ABCs tests. This means that at least 90% of the students tested performed at grade level according to the state's ABCs test and that it exceeded expectations for student academic growth. The school made adequate yearly progress and met 13 of its 13 performance targets according to the *NC School Report Card for Westwood Elementary School 2004-2005*, by the North Carolina Department of Public Instruction (2005).

The 2005 School Safety and Access to Technology Report shows that the number of students per instructional computer was 2.81 compared to 3.33 in similar schools in the state. Since all computers are connected to the Internet, the report states that the number of students per Internet-connected computers was 2.81 compared to 3.53 in similar schools in the state. All Westwood classrooms are connected to the Internet compared to 98.8% of similar schools in North Carolina according to the *NC School Report Card* for *Westwood Elementary School 2004-2005*, by the North Carolina Department of Public Instruction (2005).

Third Year of Grant

2005-2006

During 2005-2006, the third year of the grant, Westwood housed 606 students in grades kindergarten through six who were served by 41 classroom teachers. The teacher turnover rate was 12 compared to a state average of 21 in schools with similar grade levels. Mr. Gregory, the principal, noted that this number was high for Westwood and that it was mainly due to spousal work relocations. Table 4 describes the Westwood teachers compared to other teachers in North Carolina schools similar to Westwood.

Table 4

Westwood Teachers 2005-2006

Teachers with a clear North Carolina teaching license	93% Westwood 93% State
Classes taught by "Highly Qualified"	100% Westwood

teachers, as defined by federal law	98 % State
Teachers with an advanced college degree (master's or doctoral)	34% Westwood 26% State
Staff with National Board Certification	11 Westwood 4 State
Teachers having 0-3 years teaching experience	12 Westwood 24 State
Teachers having 4-10 years teaching experience	32 Westwood 28 State
Teachers having 10 or more years teaching experience	56 Westwood 48 State

Note. From the *NC School Report Card* for Westwood Elementary School 2005-2006, by the North Carolina Department of Public Instruction, 2006

Westwood was designated as a School of Distinction with High Growth, based on its performance on the state's ABCs tests. This means that 80% - 90% of the students tested on grade level. Westwood made adequate yearly progress and met 13 of its 13 performance targets according to the *NC School Report Card for Westwood Elementary School 2005-2006*, by the North Carolina Department of Public Instruction (2006). It also exceeded expectations for student academic growth.

The 2006 School Safety and Access to Technology Report shows that the number of students per instructional computer was 2.22 compared to 3.43 in similar schools in the

state. Since all computers are connected to the Internet, the report states that the number of students per Internet-connected computers was 2.22 compared to 3.24 in similar schools in the state. All Westwood classrooms are connected to the Internet compared to 98.8% of similar schools in North Carolina according to the *NC School Report Card* for *Westwood Elementary School 2005-2006*, by the North Carolina Department of Public Instruction (2006).

In both of the two years Westwood has been housed in the new school, it has made adequate yearly progress and met all of its performance targets. It has exceeded expectations for student academic growth both years. During the 2004-2005 school year, Westwood was named an Honor School of Excellence, with at least 90% of its students performing at grade level according to the state's ABCs test. In the 2005-2006 school year, Westwood was named a School of Distinction with 80% - 90% of its students testing on grade level. Westwood remains a Title I school with an increasing population of Hispanic students. Though Westwood has been successful in maintaining high test scores, that is not the focus of this study. Westwood has also been successful in other ways, especially with its technology initiative. This will become apparent as the study unfolds.

It is my pleasure to tell Westwood's story as I see it from a researcher's perspective. I looked forward to my time there, which was both productive and pleasant. My intent is to clearly portray Westwood's technology implementation, including the impact of the principal, so that others may learn from their journey.

The study is presented in eight chapters. Following the introduction, this chapter explains the need for understanding an exemplary technology program and the role of the principal in the technology initiative. It also outlines a statement of the problem, definition of terms, the purpose of the study, the significance, and the research questions to be addressed by the study. Chapter III details the methodology used in the investigation. It explains the rationale for the case study design, data collection strategies, data analysis procedures, addressing researcher subjectivity, trustworthiness, and risks and benefits of the study. Chapters IV and V present the findings of the study and chapter VI interprets the findings. Chapter VII provides a summary and Chapter VIII is an epilogue discussing implications, limitations, and recommendations for further study. A comprehensive review of the literature is integrated throughout the study. Although this is an unusual format, it allowed me to present the study as a story without interruption. References from the literature are presented as they fit into the themes of the story. A variety of databases were used for the review including ERIC, Ingenta, Google, and Caret, an ISTE project in collaboration with Educational Support Systems. Key words used in the search process were instructional technology, technology leadership, principals and technology, technology integration, vision and technology, and shared vision.

CHAPTER II

WELCOME TO WESTWOOD

As I approached the front door of the school on my first visit to Westwood when school was in session, a student greeted me with a smile and a warm welcome as he politely opened the door for me to enter. I had been to Westwood earlier in the summer to interview the current principal, Mr. Gregory, but this was very different now with the halls filled with students. My first impression of the school had been how lovely this pristine, new facility was, but now it came alive with parents, teachers, and children enthusiastically greeting each other. The climate was inviting, but beyond that it was refreshing to see how eager the students were to get to their rooms and begin their day. My impression was that everyone was happy to be here. As I entered the reception area, I was greeted by office personnel who offered to assist. The principal, Mr. Gregory, warmly greeted me and invited me in as he had previously done in our interview. He assured me once again that he and his staff would gladly help in any way they could to gather data for the study. I soon realized that the warm welcome and eagerness to help would be characteristic of everyone in the school during the course of my visits.

The foyer of the school is bright and airy, with sparkling floors and attractive furniture. Directly ahead is a bulletin board with a banner that says “Touching Tomorrow with Technology” and the school’s vision statement below. As a visitor, this gave me a

clear orientation to the focus of the school's program and the commitment to the use of technology. There were also flyers and materials with school information available for visitors.

On this morning, as well as others to follow, there were parents chatting in the hall with each other and with members of the staff. There was a feeling of welcome and camaraderie as they talked about plans for the upcoming fall festival. Students scurried to their classrooms where they were warmly greeted by teachers and assistants with hugs and hearty "good mornings".

Mr. Gregory gave me a brief tour of the building and introduced me to the media coordinator and technology facilitator, who took time to welcome me and give me space to work. They offered materials to introduce me to the school and give me background information on the grant. They told me to make myself comfortable and consider myself part of the Westwood family. After looking over some of the documents, I strolled through the building to get a sense of the climate once classes had begun.

The layout of the school is one long, main hall going straight ahead as you enter, with two wings leading off on each side. The media center and computer lab are located on the main hall beyond the main suite of offices. Further down the main hall are the cafeteria, auditorium, and gym. The first wing to the right upon entering the building houses classrooms and offices for the exceptional children's staff. The first wing to the left, opposite of the exceptional children's wing, are the classrooms for grades four through six. The next two wings off the main hall are for kindergarten and first grades to the right and second and third grades to the left. All the hallways are filled with student

projects, both written and art work. The classrooms are bright and colorful, with curtains at the windows, bulletin boards displaying student work, and a door leading outside. They are all equipped with computers. There is a laptop that is connected to a data projector mounted on the ceiling and an interactive whiteboard at the front of the room. As I glanced in the classrooms I saw all the projectors on with teachers and students working with the whiteboards. There were also laptops being used in some rooms. Since the teachers did not expect my visit, I knew that using the technology was part of the regular school day.

From the gracious reception in the morning, I felt truly comfortable being at Westwood. Each person I met in the hall spoke to me. Most introduced themselves and asked if I needed anything. They had no idea who I was or why I was there, yet they went out of their way to accommodate me. This warm, inviting environment continued throughout my study. The Westwood family embraced me and made me feel like one of their own. However, I made a conscious effort to remain subjective throughout the study.

That first afternoon, I gave a presentation to the faculty (Appendix A). I discussed the statement of the problem and purpose of my study, as well as what their role would be. The faculty seemed honored that I had selected Westwood and were appreciative of the opportunity to showcase the school and their work. They received the presentation with interest and enthusiasm. Many teachers gathered around me at the close of the meeting to ask questions and offer their help. The faculty understood the significance of the study and hoped that their story might help other schools that are considering launching a new technology initiative. When the faculty heard the research questions and

what their role would be as participants in the study, they began to think of ways to help me gather data. They all wanted to help tell Westwood's story.

The following weeks were spent interviewing teachers, observing their classes, and examining school documents. The staff accommodated me in every way possible. They offered work space and the use of their equipment. They gladly found materials I needed and found time to talk with me. Because of their gracious hospitality and help, I am now able to tell the Westwood story.

Statement of the Problem

Technology use in schools has been at the forefront of educational reform for the past several decades. Billions of dollars have been spent to provide access to computers and the Internet in schools. As federal, state, and local governments evaluate their significant financial investments, they are looking critically at what appears to be the return in terms of student achievement. As Kleiman (2002) states, the investments were based on the potential of technology. Since technology has revolutionized most aspects of our daily lives, it is reasonable to think that it would lead the way to improved teaching and learning (Noeth & Volkov, 2004). However, there is ongoing debate as to the actual impact technology has had on student learning. Agreement, however, exists as to its potential as an instructional tool.

From the literature on instructional technology, we know that there are many variables involved in isolating its effectiveness. From the research done by the North Central Regional Educational Laboratory (NCREL) on the impact of technology on student achievement, we know that variables are difficult to determine because of the

rapid changes in hardware and software, as well as contextual factors involved in its use (2002). However, we also know from NCREL's work that technology helps students develop a range of skills from the basics to higher order thinking. Their conclusion was that technology can make learning more interactive, enjoyable, and customized to the needs of learners. It can also retrieve and store data, facilitate collaboration, and improve methods of accountability and reporting. It can motivate students to become lifelong learners. These findings strongly support the use of technology as a tool for enhancing learning.

I know firsthand how technology can be a powerful learning tool. My 19 years as a classroom teacher and two years as a reading specialist taught me the importance of addressing the unique needs of learners. My teaching experience spanned elementary, middle, and secondary levels, as well as public and private schools. Regardless of the age of students or the school setting, I was continually searching for materials and methods to better differentiate instruction. When the first computers came into schools, I saw an opportunity to use them as powerful tools to motivate learners and enhance instruction. I began teaching teachers to use technology effectively and eventually became a technology specialist in public schools. There I saw technology used creatively to motivate students and to engage them in constructivist learning activities. I saw how technology could address different learning styles and levels. I decided I could reach more teachers by moving to higher education. For the past 16 years I have worked in teacher education with developing teacher candidates, education faculty, and practitioners to help them develop ways to use technology effectively to enhance instruction.

While I believe in the potential of technology as a tool for student learning, it appears that the promises of technology have not yet been realized. Rigstaff and Kelley (2002) reviewed studies that were conducted to determine factors that affect technology integration and found that a consistent message is that technology is not a goal in itself. In order to be effective, it needs to be considered a tool for accomplishing instructional goals (Ringstaff & Kelley, 2002). What is needed is a clear plan for using this tool. The effects will be minimal without technology being woven into the school's instructional framework.

In order for technology to be integrated into the instructional program, it must be part of the school's vision and an integral part of a systemic plan (Ringstaff & Kelly, 2002). Therein lies the importance of the principal's role. In working with school administrators over the last few years, I have realized the importance of leadership in implementing a technology initiative. I believe that the powerful combination of effective leadership and technology integration has significant potential for improving schools. An integral piece of effective leadership is vision.

The importance of vision is prevalent throughout the literature on effective school leadership. In looking at what is needed for an instructional leader to be effective in a school where technology plays an integral role, the International Society for Technology in Education (ISTE) developed a set of technology standards for administrators (Appendix B). These standards represent a national consensus among educators of what effective leaders need for developing instructional programs that capitalize on technology to increase student achievement. The first standard is about leadership and vision and

talks about the need for leaders to inspire a shared vision for technology integration and to foster an environment and culture conducive to realizing the vision (ISTE, 2002). ISTE also developed essential conditions for implementing the standards. The first condition is leadership for developing a shared vision (ISTE, 2002).

The Interstate School Leaders Licensure Consortium (ISLLC) also developed standards for school leaders (Appendix B). Their first standard, along with indicators of knowledge, dispositions, and performance, talks about the importance of facilitating the development, articulation, implementation, and stewardship of a shared vision (ISLLC, 1996).

Although the importance of vision is discussed in the literature on leadership for instructional technology implementation, there are few studies that address how a vision is shaped. The principal influences the development and implementation of a vision that includes the effective use of instructional technology to enhance teaching and learning. We need a good model that teaches us how the vision is developed and implemented, as well as the role of the principal in the process. This study will describe the effective model that Westwood developed.

Definition of Terms

For purposes of this study, the following definitions will be used:

1. Instructional technology refers to any use of technology by teachers or students that enhances teaching or learning.
2. Technology integration refers to the use of technology throughout the instructional program, including all areas of the curriculum.

3. Technology initiative refers to the integration of technology, which in this case study is facilitated by the IMPACT grant.
4. Sustainability refers to the ability to sustain the level of technology integration and "cutting edge" technologies beyond the end of the grant.

Purpose of the Study

Since there is little empirical research in the area of technology leadership from principals, an in-depth study of the impact of the principal in the implementation of a technology initiative will help to fill a void in the literature and will make a valuable contribution to the field of instructional technology.

There will be benefits of the research to participants and possibly to other educators. Benefits of the study to participants will include sharing insights and findings. This information should contribute to program evaluation and approval. Lessons learned from the study should provide insights and understandings helpful to educational leaders, as well. It could inform the practice of school principals in similar settings as they seek to improve teaching and learning through the use of technology.

Significance of the Study

The National Education Technology Plan, released by the United States Office of Educational Technology (2005), lists strengthening leadership as the first action step to help prepare students for the future. This advocacy group calls for leaders to provide "informed, creative, and ultimately transformative leadership for systemic change" (p. 1).

A study by Anderson and Dexter (2000) that examined the relationship between school leadership and effective utilization of technology found that leadership greatly

impacts the success of technology programs. The results of surveying a national sample of 898 public, private, and parochial schools showed that leadership is indeed an important factor in the outcome of technology integration. They stated that it is essential for a school to have distributed leadership where all stakeholders work to adapt technology to improve student learning.

We know that leadership is important; however, there is limited information on how it impacts technology integration. There are few empirical studies that address how a principal leads in a technology initiative. Even the work by ISTE lacks a research base (D. Knezek, personal communication, 2005). More studies regarding leadership and technology are needed. Based on advocacy and standards, we have been told that the principal's role is important, but lack good models of what that role involves. Therefore, this study will investigate the effect of a principal's leadership on the implementation of a technology initiative in what has been recognized as an exemplary school for effective technology use. It will describe how the principal impacted the development of a vision for effective use of technology and how the plan was implemented.

Research Questions

The overarching research question for this study is:

- How did a principal influence the implementation of an instructional technology initiative in one school that has been recognized as an exemplary school for effective technology use?

Other questions include:

- How did the principal lead?

- What did the principal do specifically related to technology?
- What other factors in the school influenced technology implementation?
- What other leaders were influential in technology implementation?
- How did this principal become a technology leader?

By investigating the research questions, a clear picture of Westwood's leadership should emerge. The principal's role in the development and implementation of the vision for technology integration will be described. Insights into his leadership style should fill a void in the literature on technology leadership. There are technology standards for school administrators; however, they are not based on research. This study should provide insights into the role of school principals in the integration of technology into the instructional program. There are few studies that describe how technology integration is done effectively. The Westwood model should inform the practice of other school leaders interested in a similar technology initiative. Lessons learned by the principal and teachers should be helpful as others consider or plan for embarking on a similar journey. The following chapter describes the investigation.

CHAPTER III

LISTENING TO THE WESTWOOD VOICES

Rationale for Qualitative Design

In order to tell the story of Westwood, I chose a qualitative approach. Creswell (1998) defines qualitative research as "an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem" (p. 15). He goes on to say that a holistic picture is developed as the researcher conducts the study in a natural setting.

Since the purpose of this investigation is to gain insights into the unique Westwood site, I chose a single, intrinsic case study (Stake, 1995). The research design provided an opportunity to present an in-depth picture of how technology is integrated into the instructional program of the school, as well as the influence of the principal in the implementation process. This was done by focusing on the perspectives of participants, including the principal. The case study design allowed me to explore the many factors involved in making this school unique (Thomas, 1998). It was a case study bounded by time, although the five month period resulted in data saturation (Creswell, 1998). The research design evolved as the data were collected and analyzed. The focus was on developing thick description of the case in order to understand the complexities of the leadership and technology integration (Stake, 1995).

Data Collection

I spent many days during the late summer and fall of 2006 at Westwood. I received permission from the Ashe County Schools and the Westwood principals to study Westwood and to use its real name. I was a participant observer, immersed in the everyday workings of the school while collecting extensive data on this exemplary site (Thomas & Brubaker, 2000). Purposeful sampling provided the most detailed information I needed from the principals, teachers, and assistants who were involved in the technology implementation process (Creswell, 1998). The criterion I used for selection was that they had to have been involved in the grant from the beginning in order to provide a holistic picture of the technology integration from its inception. Those interviewed represent the total faculty involved in the grant in order to provide a wide range of perspectives. I used multiple sources of data by conducting observations, examining school documents relating to the technology grant, and exploring the school website (Thomas & Brubaker, 2000). I continued to gather data for the next three months until the information was consistently redundant. At this point of saturation Richards (2005) states that the breadth of data has been covered and I felt I had a holistic picture of the school and its work.

In-Depth Interviews

The interviewing began with the principals. Keith McClure was the principal of Fleetwood Elementary and John Gregory was the principal of West Jefferson. When the schools merged, Mr. McClure was named the principal of Westwood and Mr. Gregory became the assistant principal. At the close of the 2005-2006 school year, Mr. McClure

left Westwood to be on loan to the North Carolina Department of Public Instruction (DPI) in order to serve on a team of educators providing assistance to low performing schools in the state. Mr. Gregory then became Westwood's principal. The focus of the study is on Mr. McClure, since he served as principal during the three years of the IMPACT technology initiative.

My first contact with Mr. McClure was at a meeting of the advisory group of the Southeast Initiatives Regional Technology in Education Consortium (SEIR-TEC) in 2004. I attended as a member of the advisory group. Mr. McClure and a team of Westwood teachers gave a presentation on their IMPACT grant implementation in order to provide the advisory group with an update of the IMPACT project. Westwood was invited as a result of their exemplary grant work. I was impressed with the progress they had made while only halfway through the grant cycle. It was clear from the grant evaluators that Westwood was regarded as an exemplary technology site in the state. My colleagues at SEIR-TEC and DPI suggested that it would be the best school for my study.

After the meeting, I approached Mr. McClure with my idea of doing a case study of Westwood, focusing on his leadership. He was very amenable and responded with a genuine, "Come on up and visit us. You will be welcome anytime." My next contact with Mr. McClure was a phone call last spring (Spring, 2006) asking if he were still willing to participate in the study. He agreed and we arranged a meeting in West Jefferson at his interim office. This was the first interview of the study.

Mr. McClure was open and candid in our interview session. It was evident that he enjoys talking about Westwood, especially the hard working faculty. His personable

manner and willingness to accommodate produced rich data. I had a second interview with Mr. McClure when he was in Raleigh preparing for the assistance team project. He talked freely as I moved from the open-ended questions of the first interview to more probing ones regarding his role in the technology initiative. He spoke extensively about his leadership, but gave most of the credit for the success of the grant to his staff.

My first visit to Westwood was to meet with the current principal, John Gregory. At this time, Mr. McClure had been asked by the North Carolina Department of Public Instruction to serve on a team of principals to provide assistance to low performing schools. In his absence, Mr. Gregory, who had been Mr. McClure's assistant principal, was named Westwood's principal. I phoned Mr. Gregory earlier to discuss the study and arrange an interview. Though very reluctant to be interviewed, he finally agreed, but explained that he had limited knowledge of the technology initiative since he had not been actively involved in it. He described his role of Mr. McClure's assistant principal, as one of assuming other managerial responsibilities so Mr. McClure could focus on the grant. This confirmed what Mr. McClure told me about Mr. Gregory's role and how much he appreciated the fact that Mr. Gregory was able and willing to relieve him of other tasks. Mr. Gregory was kept informed and participated in some meetings and professional development, but that was the extent of his participation in the grant. His interview, however, provided valuable information about the school in general.

As gatekeeper, Mr. Gregory introduced me to the media coordinator and technology facilitator who were key leaders in the grant implementation. They provided names of other faculty who met the criterion for participating in the study. They also led

me to school documents relating to the technology initiative. I acknowledged the help of all interviewees by giving a small gift and a note of appreciation in return for their time and inconvenience. I sent transcriptions back to the interviewees for accuracy (Creswell, 1998). One interviewee responded with additional comments for me to include in the study. I conducted 22 interviews, including staff and principals. The small sample allowed for in-depth interviewing. Table 5 shows the staff I interviewed, as well as their positions.

Table 5

Staff Interviewed

Bowers	Media Coordinator
Norris, M.	Technician
Gambill	Technology Facilitator
Gamble	Teacher
Ashley	Teacher
Brown	Teacher
Taylor	Teacher
Norris, K.	Teacher
Reavis	Teacher
Gardner	Teacher
Sloane	Teacher Assistant

Miller, D.	Teacher Assistant
Darnell	Retired Media Coordinator
Miller, K.	Teacher
Eldreth	Teacher
Krider	Teacher Assistant
Miller, S.	Teacher
Vannoy	Teacher
Hutchinson	Teacher

I interviewed all participants one time, except for McClure. Since he was Westwood's principal during the grant, I had two lengthy interviews with him. I conducted the interviews individually, at the convenience of the participants. All interviews were in-depth and conducted onsite, with the exception of Mr. McClure's whose sessions were in West Jefferson and Raleigh where he was working at the time. Mr. Gregory, the current Westwood principal, served as the gatekeeper for teacher interviews by introducing me to the faculty and allowing me to give them a presentation on the study (Creswell, 1998). When introducing me, Mr. Gregory's comments gave credence to my work and contributed to the staff's confidence in the study. Everyone I approached to request an interview eagerly agreed. All participants reviewed, signed, and received a copy of the University of North Carolina at Greensboro Institutional Review Board Consent to Act as a Human Participant: Long Form (See Appendix C) and agreed

for me to use their real names. Establishing trust and building rapport with the participants required little effort due to their interest in the study and their eagerness to help (Maxwell, 2005).

The interviews were open-ended, beginning with general questions, then becoming more specific in order to gain a detailed picture of the school's use of technology. I tried to allow the interviewees to direct the interview; however, I used a protocol (See Appendix D) to guide the sessions. The protocol contained key questions with appropriate probes and follow-up questions. I allowed time for interviewees to digress if their information was useful (Thomas & Brubaker, 2000). I tape recorded all interviews in a quiet location, with the consent of the interviewee and took copious notes on a protocol form. Immediately following the interviews, I made reflective notes in my field journal. With the assistance of another transcriber, we transcribed the interviews and sent the verbatim transcriptions back to the interviewees for accuracy (Creswell, 1998).

I began the interviews by asking the participants to tell me the story of Westwood's technology initiative. This preliminary information allowed the interviewees to begin to set the direction of the interview; however, I sometimes had to clarify their roles in the initiative. I followed up, when necessary, with questions regarding the degree of technology integration and the success of the grant. I probed to find the factors that contributed to the success of the initiative, as well as challenges and future directions. I was especially interested in the role of the principal and the effect of his leadership on the implementation. I asked questions about the school's vision and how it was developed. I probed to get a clear understanding of the school's leadership

and how the technology vision related to the vision of the school's instructional program. I concluded the interviews with offering an opportunity for the participants to add anything that had not been discussed.

Direct Observations

I conducted direct observations of a purposeful sample of teachers to see how technology was being used by teachers and students. This increased my understanding of how well the technology was integrated into the instructional program and why the school was considered exemplary. It also verified what the teachers had told me about how comfortable they were in using the technology and how they had come to rely on its effectiveness as an instructional tool. Interpreting the observation records helped me to understand how the principal's expectations of technology being seamlessly integrated into instruction were realized.

I received permission from each teacher before conducting the observation. They each signed the proper consent form. At the close of the observation, I added reflective notes to the descriptions I recorded. I gave all teachers who were observed a gift and note in appreciation of their time and efforts. The observations were valuable in determining the level of technology integration and to support data from the interviews. The meetings I observed also provided insights into the level of technology integration and were valuable illustrations of the collaborative efforts of faculty. I was unable, of course, to observe Mr. McClure at the school. I limited my observations of Mr. Gregory to one faculty meeting, since he was not the object of my study. Table 6 shows the observations I conducted.

Table 6

Observations Conducted

Gregory	Principal
Taylor	Teacher - Academically and Intellectually Gifted
Gardner	Teacher – 2nd grade
Ashley	Teacher - kindergarten
Brown, D.	Teacher – 3rd grade (lab)
Brown, A.	Teacher – 3rd grade (classroom)
Norris	Teacher – 6th grade
Bowers	Media Coordinator
Nave	Music

Document Review

Documents related to the technology grant provided valuable data, especially the original and renewal grant applications and the annual reports. I also examined IMPACT documents by the Media and Technology Division of the North Carolina Department of Public Instruction. They provided background information and helped me understand the IMPACT model. I carefully examined minutes from faculty and grade level meetings, lesson and unit plans, as well as documents related to professional development sessions for faculty on technology. These were rich sources of data that revealed the level of

technology integration in the school and the implementation and corroborated the evidence from other sources (Yin, 2003). In many cases the documents served as records that substituted for events and meetings that I was unable to observe (Stake, 1995).

I copied many of the documents with the permission of school leaders and took notes while examining others. Data gathered through the examination of documents were an integral part of the data collection process. Table 7 is a list of documents I examined.

Table 7

Documents Examined

IMPACT: Guidelines for Media and Technology Programs
News: From Mrs. Hutchinson's Class
Ashe Board of Education Website –Endowment Fund
IMPACT Grant Application
IMPACT Renewal Grant Proposal
IMPACT Model School Self-Assessment
IMPACT Final Report
EETT Competitive Grant Enhancement Project
EETT Competitive Grant Enhancement Final Report
Westwood's Strategic Technology/Media Plan
Various presentation handouts and PowerPoint slideshows by Westwood faculty at national and state conferences
Various lesson and unit plans

Westwood Collaborative Unit Evaluation
Various grade level meeting minutes
IMPACT Needs Assessment
IMPACT professional development rosters
Various purchasing documents
Westwood Weekly Reflection Log
Letter from trainer
North Carolina Standard Course of Study Technology Skills Level of Implementation Form
IMPACT Roles and Responsibilities List
Professional Development Activities Summary
Leadership Practices Inventories for McClure and Bowers
Parent Write Nite letter to parents

Website Review

The Westwood Elementary School website gave me an overview of the school's program before my first visit. It also provided contact information, as well as directions to the school. Online documents from the website provided insights into the culture of the school and the principal's leadership. Table 8 shows helpful information provided by the site.

Table 8

Website Information

Westwood Elementary School's Vision
Westwood Howlers (newsletters to parents)
Activities and events
Classroom sites with academic information
Documents related to instructional technology
Parent Teacher Organization information
Photos of school events
MountainTimes.com article entitled "New Grant will Provide Advanced Technology for Westwood Classrooms"

During the course of the study, I kept two journals where I consistently recorded descriptive and interpretive notes. One journal was for field notes and the other was for methodological information. The journals served two purposes. They provided a record of my work and an opportunity for reflection. The reflective thinking informed my plan and guided my work. The detailed entries also provided pertinent data that I might have otherwise overlooked (Creswell, 1998).

Data Analysis

Analyzing data was an ongoing process during the data collection and review as I made memos and journal notes (Richards, 2005). My notes were descriptive, but also

reflective as I analyzed the information and looked for patterns and their meaning (Stake, 1995). All interview tapes were transcribed and reviewed immediately following the interview. I sent transcriptions back to interviewees to check for accuracy and clarification (Maxwell, 2005). When I began the formal process of analyzing and interpreting the data, I reviewed all information to gain an overall sense of the data. This included notes, memos, journals, and school documents. I wrote additional memos throughout the review (Creswell, 1998). Based upon the reviews, I developed a set of codes and coded all transcriptions and documents. I used purposive coding; however, I revised the codes throughout the coding process (Richards, 2005). I started with 24 codes and reduced them to 12 as I broke the information into pieces. Themes emerged as I conducted the interviews and became clearer as I coded the transcripts. I separated the hard copy transcripts by physically cutting them by codes and sorted them into categories for data management. I organized them in file folders according to code. I also coded and sorted the documents and observation records. As I reviewed the categories, I was able to discern themes and patterns. As the themes emerged, I began to make connections and understand the relationships between the themes (Stake, 1995). The process aided in understanding how the school came to be exemplary and how the principal impacted the success of the technology implementation.

I created a matrix of data and sources to visualize the information and make sense of the data (Creswell, 1998). The matrix helped me determine that I had reached saturation and had sufficient data to explore the relationships between the categories,

interpret the findings, and answer my research questions (Yin, 2003).

Table 9

Matrix of Data and Sources

	Interviews	Observations	Documents	Website
Goals	x		x	x
Buy-In	x		x	
Technology Plan	x		x	x
Technology Leadership	x		x	
Professional Development	x	x	x	
Collaboration	x	x	x	x
Technology Use	x	x	x	x
Challenges	x			
Exemplary Features	x	x	x	x
Lessons	x			

Learned				
Mr. McClure	x		x	
Outcomes	x	x	x	x

Research Subjectivity

I monitored my positionality as a technology specialist and teacher throughout the study in order to address researcher bias. I knew that my account of the information would be filtered through my particular professional lens, having spent the last 20 years working with instructional technology (Thomas & Brubaker, 2000). I knew what an exemplary technology site should be and knew not to be overly critical as I gathered data; however, this was not a problem since this site was truly stellar. I was careful to be objective and not let my feelings for the participants influence my findings. This could have been problematic since the people were extremely accommodating and friendly. Not only did they make me feel very welcome, but they shared many personal stories and feelings with me. Though I quickly felt comfortable in their setting, I maintained my objectivity. The Westwood staff are very professional and respected my role.

I monitored my subjectivity through careful note taking, transcribing, member checks, and analyses. My field journals provided a record of my thoughts, ideas, and reflections, including my awareness of personal subjectivities. Even though the staff embraced me and were eager to help, I remained objective as I gathered and interpreted

data throughout the study. I remained cognizant of the fact that their warm welcome and accommodating spirit could influence my work, so I was careful not to let this happen.

Trustworthiness

My research design included opportunities for establishing trustworthiness throughout the study. The data collection stage included prolonged engagement with participants in their natural setting in order to build trust (Creswell, 1998). I communicated with the faculty over a period of five months and made six trips to conduct interviews. I spent 12 days at the school interacting with faculty and observing them teach and conduct meetings. The rapport I established with the teachers, principal, and teacher assistants was evident in their eagerness to be interviewed and permitting me to use their real names. Their collaborative spirit extended to my work and they indicated their desire to partner in the research project. Member checks allowed for respondent validation of interviews and interpretations of data (Creswell, 1998). Participants reviewed interview transcripts and responded accordingly. One interviewee responded with a clarification and some additional information.

I used triangulation, which Maxwell (2005) defines as using multiple data sources to limit biases of a specific source. I did this by collecting data from interviews, observations, documents, and the school website. The corroboration of evidence, as well as the respondent validation, addressed validity threats and helped me to provide an accurate description of the case (Maxwell, 2005). All documentation, including tapes, field notes, schedules, matrices, and interview protocols were maintained and available for review.

Transferability is addressed through thick description. The detailed, in-depth descriptions of the setting and participants may enable readers to transfer information to their setting if applicable. In this case study, the value is not external generalizability, but lessons learned may make an important contribution to the field of instructional technology (Yin, 2003). As Stake explains (1995), the case study is not selected as a research method to produce generalizations, but to gain understandings from a particular case. Westwood can serve as an excellent model for others interested in embarking on a systemic technology implementation project.

Risks and Benefits of the Study

The only risk to participants in the study was the possibility of their revealing information to me that would make them uncomfortable. To my knowledge, this did not happen. One participant cried and two others were teary as they related experiences where the principal showed compassion to them or their colleagues. They were not uncomfortable; however, they were moved when sharing the stories. I advised all participants of the risks of the study and allowed the choice of participating or declining. All whom I approached were eager to be involved. I also gave participants the option of being protected through anonymity. They all agreed to let me use their real names in order to add credence to the study. I sent interview transcripts back to participants for review and feedback. I maintained sole possession of all documents, which are stored in a locked file cabinet at my home. I followed all procedures and protocols of the University of North Carolina Institutional Review Board.

The insights and findings of the study will be shared with participants and should lead to better understandings which will contribute to their program evaluation and approval. They will be able to celebrate the successes discussed in the study and reflect on the findings. Lessons learned may provide insights and understandings helpful to educational leaders in other settings, especially those similar to Westwood. The study can inform the practice of school principals and technology leaders as they seek to improve teaching and learning through the use of technology; however, this case study is unique and the purpose is not to apply the knowledge gained to other settings (Thomas, 1998). The contribution of the study is that Westwood, though not representative of other schools, can serve as a model for effective instructional technology integration.

CHAPTER IV

"TOUCHING TOMORROW WITH TECHNOLOGY"

As I first entered the foyer of this beautiful, new school my eyes were immediately drawn to a large banner that read "Touching Tomorrow with Technology". Below the banner was Westwood's vision, clearly displayed for all to see. It states:

> The vision of Westwood Elementary School, through collaborative efforts of administrators, educators, students, staff and stakeholders, is to prepare students for the 21st century.
>
> This partnership will encourage and impact continual growth among this community of learners. Education will be further enhanced through art integration and technology by using mindtools to develop and apply higher order thinking skills.
>
> We will foster the expansion of ideas and the sharing, valuing, and appreciation of the beauty of individuality and global diversity. Students will become empowered with essential skills to become independent and productive lifelong learners in this safe and nurturing environment. (Westwood Elementary School Faculty, 2003).

I soon discovered that the motto and the beginning of the vision statement, "The vision of Westwood Elementary School, through collaborative efforts of administrators, educators, students, staff and stakeholders, is to prepare students for the 21st century. . .", represents two important findings in my study. The first deals with the importance of vision and the second with the role of collaboration. This chapter will address my findings regarding the vision theme which includes the issues of a technology plan, faculty buy-in, professional development, technology leadership, and the result of the vision, which is how technology is being used. The following chapter will explore my

findings on the importance of collaboration. The role of the principal is the focus of each theme and will be examined in detail.

Vision

I was eager to investigate the origin and impact of the Westwood vision. When interviewing each teacher, I asked about the process of developing the vision statement and what impact it has, if any, on the work of the school. They were all aware of it and stated that it had been developed collaboratively. But, Bennett Darnell, the media coordinator at Fleetwood, conceived the original piece of the vision. She was concerned about the lack of resources for media and technology programs at the time. Some teachers were interested in technology and had limited knowledge on how to use the little they had. They were struggling. In an effort to improve technology use, Darnell began to explore grant opportunities. During the same timeframe, she was learning what an exemplary media and technology program looks like as part of preparing for her National Board certification. Mr. McClure was also learning about the importance of technology integration while attending the PATL (Principals as Technology Leaders) program sponsored by PEP (Principals Executive Program).

As luck would have it, personnel from the Ashe County Schools contacted both Darnell and McClure about the IMPACT grant. After carefully considering the timing and the amount of work involved since the schools would be merging, Darnell and McClure decided to pursue the proposal. When asked why, Mr. McClure stated that the IMPACT model was based on what he believed in. It was student oriented, focused on instruction, and grounded in collaboration. The money, of course, was attractive, but

McClure was also interested in the process. It would allow teachers to explore ways to use technology tools to better meet the needs of students. The model was commensurate with his philosophy and that of the school, to continually improve instruction and prepare students for the future.

Though all principals in the school district were informed of the grant opportunity, Mr. McClure was the only one who was interested. He thought, however, that Westwood would not receive the grant because of their already high test scores and the fact that they would be moving into a new building. So, he contacted other principals to see if they would consider writing a proposal. Only one proposal was allowed from a school district. None were interested, so McClure and Darnell pursued the opportunity and began writing the grant. They saw this as a way to share their vision and give the Westwood children the best possible education.

The commitment of Darnell and McClure was evident in the fact that the grant had to be written in a short time and mainly during the winter break. Due to time constraints, Darnell was the primary grant writer, though she had help from others at the school and in the district office. She indicated to me that she wanted to expand the initial involvement, but there was not time. However, the faculties were fully informed and shared the interest in and commitment to the technology grant. They saw the need to prepare students to live in a technology-driven world. The technology piece of the school's vision was realized when the Westwood proposal was accepted and the IMPACT grant was implemented.

The Westwood vision statement, though begun during the grant writing process, was developed by a cohort of teachers during the grant implementation. These teachers worked on it as part of their coursework for a Masters degree in instructional technology. The Westwood faculty made the decision to allocate a portion of the grant staff development funds to pay for any interested teachers to pursue a Masters degree in instructional technology at Appalachian State University. Eleven teachers are now in that cohort. Another teacher is seeking a Masters degree in instructional technology, but was already in an online program at East Carolina University. The Westwood Masters cohort crafted the vision statement with help from the faculty. All the interviewees explained that they were invited to voice ideas for the vision. They were also encouraged to react to drafts by providing feedback. The staff discussed and accepted the final draft at faculty meetings. As Ms. Reavis, a fifth grade teacher, stated, "We want all of the faculty and staff here to be a part of the vision and to buy into it."

All teachers interviewed were knowledgeable about the vision and explained its significance as being a shared vision and reflecting the goals of technology integration which are to help students achieve by enhancing instruction and to prepare students for the future. As Ms. Taylor, the teacher of academically and intellectually gifted students, said, "We have no choice but to prepare our students for the future. They have to be technology literate." Others talked about the need for students to function in a digital world and to be prepared for the 21st century workforce. Some teachers mentioned that technology would help students become lifelong learners. The teachers said that Mr. McClure kept them focused on the vision by facilitating and supporting it. He did this

mainly through encouragement and providing resources. He also continued to remind them that the focus was on student learning, not the technology. The focus of the vision, as well as the technology initiative, was always about improving instruction and student achievement.

The full vision statement for Westwood includes other components; however, it is the technology vision that is the focus of this study. That vision developed into a technology plan.

Technology Plan

I followed up questions regarding the vision with ones concerning the development of a technology plan. I was interested in how the faculty operationalized the vision. Again, all interviewees stressed the fact that the goals of the plan are based on preparing students for the future. In addition, they all talked about the goal of using technology to enhance student learning. Eleven of the seventeen teachers interviewed referred to technology as a tool to increase student achievement. Ms. Norris, a sixth grade teacher, explained that integrating technology is enhancing instruction by providing new methods of teaching higher order thinking skills and differentiating instruction. Ms. Brown, a third grade teacher, echoed what others said when she stated, "It's all about the kids. The focus is on student learning, not the technology." Mr. Norris, the technician, summed it up when he said, "We want them (the students) to be successful."

The technology plan evolved from the IMPACT grant during the second year of implementation. It was begun at an IMPACT academy and finished by the Media and Technology Advisory Committee (MTAC). This committee is composed of the principal,

media coordinator, technology facilitator, technician, literacy coordinator, teacher of academically and intellectually gifted, three classroom teachers, and two parents. They studied the proposal and the vision and, with input from the rest of the faculty, crafted the plan. It was aligned with the district technology plan which is aligned with the state technology plan. The MTAC has continued to develop the plan, along with the School Improvement Team, as the grant implementation has evolved. Mr. McClure remained actively involved in the committee work as well as all other aspects of the grant. He required that Individual Growth Plans of the teachers include a technology component based on the technology plan. He was clear in his expectation of technology integration, but allowed the freedom for teachers to decide how to use it.

An interesting finding regarding the technology plan is that the school district requires a technology plan, a school improvement plan, a Title I plan, and a crisis plan. Unlike some other school systems, they want the plans to be integrated into one. As Mr. Norris, the technician, stated, "Our technology plan and school improvement plan go kind of hand in hand. Without the school improvement plan, what good is the technology plan and vice versa?" Ms. Brown, a third grade teacher, stated that the plans are all aligned because of the common goal which is student learning and giving the students what they need to succeed. The process of developing the plan at Westwood includes faculty voices through input from surveys and needs assessments. The plan is discussed in faculty meetings and voted on by the entire staff. Parents also have input through their representation on the MTAC and School Improvement Team. The plan is communicated

through meetings and is available on the school website. I found the plan to be based on a shared vision with a strong commitment voiced by the principal and faculty.

Buy-In

Though the initial vision for technology was that of Ms. Darnell and Mr. McClure, every interviewee, without exception, displayed a strong commitment to the vision. Mr. McClure explained, however, that teachers had to be sold on the idea. Since buy–in from the total staff usually takes time, I questioned Darnell about how the support was gained. She explained that an IMPACT committee, which later merged with the MTAC, was formed when the grant was awarded and their strategy for gaining buy-in from faculty was one of the best things they did. Knowing that technology can be intimidating, teachers who were interested were invited to be lead technology teachers. They received equipment first and were committed to using it.

As other teachers began to see how the technology was helping students learn, they slowly became interested and eager to learn, as well. No teacher was forced to be trained, but as they saw the benefits of using the technology with students, other teachers began to seek instruction. Ms. Reavis, a fifth grade teacher said that although the teachers were eased into technology use, it was still a bit overwhelming at first. She said the excitement grew, though, as ideas were shared. As interest grew, teachers continued to share ideas for integrating technology into curriculum areas and to help each other. This peer tutoring resulted in increased skills and motivation to continue learning. But, most teachers said the real motivation came from students. They saw how excited students

were to use the technology and that it was helping students succeed. This was a powerful motivation for faculty because they were committed to the school's student-driven vision.

The goal for gaining buy-in was for teachers to learn at their own rate, keeping them in their comfort zone. Mr. McClure was clear, however, in his expectation of technology integration. He said that he knew he had to have key people involved. He realized that integrating technology would involve changing the way people think. McClure said, "I think that's where it started, making sure we had the right people on the committees, involving the correct people who felt this was a good thing, that it would favorably impact students and instruction. It all started from there and the teachers became the leaders." He attributed buy-in to those early adopters sharing the leadership and the vision.

The teachers commented on the fact that Mr. McClure remained very involved in the planning and participated in the professional development. Though he did not force, he made his expectations known and remained focused on the vision. He modeled what he expected of the teachers. Mr. McClure shared with me that he believed he needed to be an example of the behaviors he wanted to see. He said that modeling is necessary to show that you believe in something.

A factor that might have impacted the successful buy-in was that several teachers retired when the two schools merged. Four interviewees implied that it might have been a challenge for the retiring teachers to commit to learning how to integrate technology into their teaching. That was not, however, the reason the teachers retired. I was told it was

because they had the years of service and chose retirement over moving to the new school.

Another factor that may have been important to the success of the grant is that there is no teacher shortage in Ashe County. The current principal, Mr. Gregory, told me that there is not much turnover and there are about ten applicants for every position in his school. So Mr. McClure was able to hire the best. Besides the principal, the interview team includes teachers and together they look for the best fit for Westwood. This includes sharing the vision and buying into the promise of using technology. They also need to be open to collaboration and committed to working hard for the best interests of the students.

Hiring the best teachers for Westwood is so important that one teacher told me she went to school on the morning of her mother's funeral to interview a prospective teacher for her team. She wanted to be sure her new colleague would fit into the culture of the team and the school. Unlike some other school districts, Westwood is fortunate to be able to be selective and hire the best teachers available. They are careful to select those whose teaching philosophies are commensurate with those of the staff.

Interviewees emphasized that all Westwood teachers share a common desire to learn new things, as long as it will help the children. When referring to the staff, Ms. Ashley, a kindergarten teacher, said, ". . .every single person that I know of wants to know more. They've either gone on and done their masters or National Board certification. They're hungry for knowledge." This is reflected in the fact that 10 Westwood teachers have received National Board certification and one more is applying

this year. The teachers said that their willingness to take risks, on behalf of the students, contributed to their learning to use technology. The teachers also stated that Mr. McClure created an environment conducive to experimenting and taking risks. One reason they bought into the vision was that they knew Mr. McClure wanted them to try new things. He did not let test scores drive the decision making, but they continued to improve anyway.

The ultimate goal was benefiting children. Mr. McClure emphasized to me that all their decisions were based on what is best for the students. The teachers reflected this when they talked about the school being child centered. Ms. Ashley, a kindergarten teacher, explained that when you want the best for the children, you have to be the best possible teacher you can be. She said that children deserve the best. As a leader, Mr. McClure seemed to model striving for the best you can be. In this case, it meant working hard to use technology to improve teaching and learning.

Professional Development

All faculty reported that professional development was extremely important to buy-in and the success of the technology initiative. Some teachers said that at first they did not understand why the grant required them to spend such a large portion of the budget on staff development. But, as Ms. Gardner, a second grade teacher, indicated, the faculty soon realized that professional development was key to learning to integrate the technology and implement the grant successfully. The sessions were based on common needs assessments of the faculties at both locations, as well as the state and national technology standards for teachers and the school's technology plan. Ms. Norris, a sixth

grade teacher, stated, “We had a variety of training. It was based on needs assessments and then the needs were prioritized. We still have needs assessments even though the grant is over.” Ms. Reavis, a fifth grade teacher, said that there were also sessions on topics the teachers had not indicated they needed because there were times when they did not know enough about technology to know what their needs were.

Being careful not to force technology professional development on teachers, the only mandatory sessions offered were those when teachers received new equipment. This was done so they would learn to operate it correctly, preventing technical problems and frustration from lack of basic operation skills. An example was when the laptops were given to teachers. The leaders turned the event into a party complete with cake and ice-cream to celebrate. Ms. Taylor, teacher of academically and intellectually gifted students, said that the party was really fun and helped to set the tone that although change was needed, it could be fun. Teachers were trained and then told to use the laptops for personal as well as professional purposes. This kind of ownership increased the level of comfort and encouraged teachers to explore ways to use the laptops for instruction.

The rest of the professional development was optional, but session records show that most teachers took advantage of all opportunities. The teachers kept records of the standards they mastered and reflective logs on how they were using the technology for instruction. There were over 100 hours of technology professional development during the first year, taught by vendors, people from other schools, and noted experts in the field. Several interviewees commented on the quality of the sessions. They said the presentations were well planned and effective. Instructors were patient and helped

teachers work through problem solving rather than telling them how to do it or doing it for them. Teachers appreciated the hands- on opportunities to learn. Mr. McClure encouraged teachers to attend state and national conferences. He knew that these were valuable opportunities to learn from other educators regarding their experiences, as well as to see the cutting edge technologies from vendors. Once Westwood teachers felt comfortable, McClure encouraged them to present at these conferences in order to help others by sharing their experiences and knowledge.

Mr. Norris, the technician, stated that the teachers had the attitude that since they had the equipment, they wanted to use it, and use it the right way. He said teachers were open to trying new things and that given a little technology knowledge, they would take the equipment and discover effective ways to use it. Interns and student teachers also attended sessions when possible. Teaching assistants participated in some sessions; however, attendance in the professional development offered after school hours violated the policy of limiting their work to a 40 hour week. They received compensation time occasionally, but typically the teachers trained the assistants. Sometimes, though, the assistants explored new ways to use the equipment and then taught the teachers. Ms. Sloane, a kindergarten assistant, said that she really enjoyed sharing what she discovered with her cooperating teacher because it made her feel like there was something she was in charge of and she liked learning by doing it on her own.

Grant funds provided a stipend to teachers for the after school sessions. Six interviewees remarked that even though it was a minimal amount, it was appreciated because it made them feel valued and showed the importance of professional

development. Ms. Gardner, a second grade teacher, said that most teachers would have attended the sessions without stipends, but that it was really appreciated. The MTAC made the decisions on how the staff development money would be spent and felt stipends were a wise use of the funds. The teachers seemed to agree. Teachers also received licensure renewal credit for the professional development sessions.

Another motivating factor for teachers to be trained that was discussed by all interviewees was the expectation from Mr. McClure. The teachers said that he participated in the sessions and that while they were progressing at their own rate, they knew that Mr. McClure expected them to learn. Teachers said they knew what Mr. McClure wanted them to do with the knowledge and equipment and they knew why. He did not, however, tell them how to do it. He allowed them the freedom to explore. While most teachers appreciated his trust in them as professionals, two teachers said they wanted more direction. One was a beginning teacher and the other was experienced, but found the lack of direction frustrating. All other teachers indicated that they felt comfortable with the freedom to explore and learned best by experimenting. Mr. McClure gave them the support and resources they needed, then let the teachers teach. His expectation was that they would be able to enhance their teaching by using the technology.

Several teachers commented that Mr. McClure's participation in the professional development was important to them. It reflected his belief in the grant and the importance of learning to use technology effectively. McClure emphasized to me that he tried hard to model the behaviors he wanted to see in his teachers. He knew the sessions meant

spending many valuable hours at school in sessions, but he also knew it was essential for growth and the success of the grant.

The masters degree program in instructional technology was a tremendous incentive for teachers to have extensive educational opportunities. Appalachian State University professors offered classes to the cohort onsite and online. Grant funds paid for all classes except the final one. Students in the program often serve as trainers for the rest of the Westwood staff. Several teachers in the cohort commented that the instruction they received in the masters program has been important to the success of the grant. They feel they have made a contribution to the overall initiative that they would not have been able to make without the masters courses. They are now responsible for instructing the new teachers.

Each interviewee mentioned that the professional development was "just in time", meaning that it was offered when the equipment became available and the teachers had a need to learn. The MTAC intentionally planning the sessions this way. They knew if they gave out all the equipment at once, the teachers would be totally overwhelmed. The focus of the sessions was integrating the technology into the curriculum and how students could use the technology to help them learn. Still, each participant emphasized the importance of follow-up support from personnel. The media coordinator, technology facilitator, and technician were available to assist. I was told by everyone that this support was invaluable and contributed greatly to their success. It eliminated many of the potential frustrations, since these people were on call anytime. As Ms. Ashley, a kindergarten

teacher stated, ". . .it's not just a workshop here and then you don't have any support. We've been given support."

Even as teachers began using the technology, they reported that it was sometimes overwhelming. Two of the interviewees, who were comfortable with the technology from the beginning, said that the instruction was too much to handle at times even for them. Though they knew it was developmental and they could set their own pace, they said they were eager to learn. There were times, though, when they had to forego sessions in order to move more slowly. The teachers said they needed time to practice using equipment they had available before a new piece was introduced. Ms. Reavis, a fifth grade teacher, said that when the professional development became too much for her, she had to start picking and choosing sessions to attend. She said she needed time to internalize before moving to something new.

The technology professional development is now ongoing even though the grant is over. Sessions are held each Tuesday. Some sessions are done in house and some is offered at other schools. The masters cohort is helping to keep the faculty trained as part of their internship. They plan to continue to help with professional development as part of their technology responsibilities for the school. The Westwood faculty knows that technology advances rapidly and they need to stay current with the newest equipment and the most effective instructional uses.

Technology Leaders

Twelve of the seventeen teachers interviewed emphasized the importance of technology leaders in the initiative. They credited Mr. McClure with having the vision,

choosing good leaders, and allowing and encouraging them to develop. All but one interviewee mentioned his development of teachers as leaders. Teachers said that Mr. McClure recognized the potential in people and capitalized on their strengths. McClure said to me, "You've got to find your resources. You've got to make sure you have given responsibilities to people in key roles." He emphasized the importance of developing teachers as leaders and said, "It was great to see them develop". He would encourage teachers to attend workshops and then train others. McClure encouraged everyone to grow and created opportunities for developing leadership. He was eager to share leadership responsibilities with teachers, although he knew the final responsibility was his. Mr. McClure said to me, "Now I know that the buck stops with me and I've got to be the one who, when the decision is made, I have to support it and assume responsibility for it because I'm the principal of the school." He voiced this when the Westwood team was interviewed as part of the IMPACT selection process. Two teachers on the team commented that McClure's willingness to assume final responsibility, as principal, was the critical factor in their winning the grant.

The other leaders were important, as well. Ms. Reavis, a fifth grade teacher, stated, "They kept us accountable and focused on integration." She went on to say that the leaders kept the staff informed of decisions that were being made and the rationale for making them. She said that the leaders made the expectations for technology use clear. The leaders kept everyone accountable by requiring teachers to keep reflection logs of how they used technology and to evaluate its effectiveness. The leaders also encouraged teachers to share their ideas and successes with others.

When asked what makes a good technology leader, all twelve teachers said that leaders must to be patient, willing to listen, have a desire to help, and be willing to learn. Ms. Ashley, a kindergarten teacher, stated that good technology leaders need to understand the needs of the school and to use the technology themselves. She went on to say that leaders need to understand that teachers are at different places in their learning and to make accommodations for learning levels and styles. Ms. Ashley felt strongly that a leader's drive is important for wanting to make the school the very best. Ms.Gamble, a first grade teacher, added that leaders need to be excellent teachers first. When talking about the technology leaders, she said, "They are all high energy and love children. You can go to them with anything. If you have an idea and go to them with it, they will take it and run. . ." Ms. Bowers, the media coordinator, said that technology leaders need to be willing to learn. She said that leaders need to "jump in with both feet" and not be afraid of damaging the equipment. Mr. Norris, the technician, said, "I think it's not how much they know, but I think it's their willingness to learn."

The teachers I interviewed who are part of the masters cohort indicated that they are seeing themselves now as developing into technology leaders. They are teaching sessions and are now responsible for instructing the new teachers. These emerging leaders, who are now conducting professional development, see themselves as benefiting the school. They plan to keep the vision alive with their knowledge and enthusiasm.

When I asked teachers to identify the technology leaders in the school, in addition to mentioning the media coordinator, technology facilitator, and technician, they all included Mr. McClure. They credited him for having the vision along with Ms. Darnell.

Teachers said he modeled, set, and communicated expectations. They were motivated by his encouragement and praise. The teachers said that his positive attitude and willingness to help contributed to the success of the project.

As Ms. Brown, a third grade teacher, said, "Because he believed in us, we tried even harder. He made it come together." All but one teacher said that Mr. McClure was the key to the success of the project. They felt secure because he trusted them to do the right things for the students. Ms. Ashley, a kindergarten teacher, said that Mr. McClure treated them as professionals and told them that they knew what they were doing, so they should go for it. His positive attitude eliminated the fear of failure and made the faculty proud. Ms. Ashley said, "I think he believed we were the best. I think he still does. So, we tried even harder." The teachers said they wanted to make him proud. Ms. Brown, a third grade teacher, said that all the teachers reflect on what they do and do not settle for just OK. She said, "We must be doing our best." It seems that the teachers believed Mr. McClure thought they were the best, so they were determined to do their best.

As a technology leader, Mr. McClure always focused on instruction. Ms. Brown stated that the teachers used technology to help them teach their instructional objectives. McClure spent time in classrooms interacting with students. He highlighted the good teaching strategies with technology he observed and encouraged teachers to visit other classrooms. He expected them to share best practices with each other and at state and national conferences. The teachers appreciated the fact that Mr. McClure defended to the local education board their need to be out of the classroom for professional reasons, such as attending conferences. Though it meant being away from students, teachers felt they

learned from attending conferences and they also wanted to share their knowledge with others. Mr. McClure was a cheerleader of the Westwood program and wanted to share their successes in order to help other educators.

Now that Mr. McClure is gone, the technology leaders he helped to develop are keeping the technology initiative moving forward. One teacher described the media coordinator as the one who "keeps the train moving" by saying, "We've got to do this and we've got to do this". The masters cohort teachers I interviewed are committed to keeping the momentum going. They see the ways technology has improved instruction and want to continue to explore effective ways to use it.

Technology Use

Mr. McClure required that teachers on each grade level develop a collaborative unit of instruction every nine weeks with technology integrated into the curriculum. This was one way he communicated his expectations of technology use. He gave teachers the freedom to explore using technology in a non-threatening environment. He considered risk-taking to be part of learning. McClure also modeled and encouraged reflective thinking and collaboration in order to learn from each other. Ms.Gardner, a second grade teacher, explained that the second grade teachers developed technology rich units, put them into notebooks, and shared them with other grades. The media coordinator and technology facilitator are valuable resources included in the grade level collaborative planning.

Every participant in the study said that it has taken time, but technology integration is now seamless. Many teachers remarked that they do not even think about it

now because it is such a natural part of their work. Ms. Ashley, a kindergarten teacher, said that the technology use is so seamless, they take it for granted. She said when thinking of what she will teach, she knows she will use the computer, projector, and interactive whiteboard. It was interesting that Mr. McClure said, "This past year I heard more about collaboration and planning than I did about the technology." It seems that integrating technology as a teaching tool was a given.

My observations and review of lesson and unit plans showed that the technology is integrated into all areas of the curriculum. It is seldom used for drill and practice. The one exception is a math computation program for upper grades that the teachers have found helpful. Otherwise, the technology is used in a myriad of creative ways that address higher order thinking skills. Students and teachers create EBooks relating to thematic units, students produce a news show, and are involved in a weather station project. They also create and publish their writing using computers. Students and teachers conduct Internet research, and teachers, parents, and students use online textbook resources. Students in the upper grades are involved in video production, digital photography, and working on curriculum related Web Quests as part of their project based learning. Students and teachers create PowerPoint presentations. Teachers do math and reading assessments using handheld computers. Students access curriculum related online videos and use a website for taking quizzes. An online dictionary is used for vocabulary work.

Computer skills are taught within the framework of curriculum areas. Each grade level teaches the skills that are part of the North Carolina Standard Course of Study. The

second grade does this in the afternoons when they teach science, social studies, and health. The teachers plan activities collaboratively and teach the area of their choice, as part of the overall unit. Students rotate throughout the classes where the computer skills are woven into the curricular activities. The other grade levels also integrate the skills throughout the day.

Teachers emphasized the fact that the technology, such as document cameras and interactive whiteboards, has made learning much more interactive. An example described by Sloane, a teacher assistant, was that when reading a book to her class, she uses the document camera and projector to display it. By projecting it onto the interactive whiteboard, the students can come to the screen and work with the words. This is also helpful for making their phonics program interactive. All teachers said that the technology is motivating students and helping to keep them excited about learning. Several remarked that students are used to being entertained with technology outside of school and now they are using it to learn. As Ms. Sloane, a teacher assistant, said, ". . . We're competing against a world of entertainment. We constantly have to introduce new things in the classroom to keep these kids motivated and excited about learning."

Class websites provide resources for parents. Ms. Miller, a fourth grade teacher said, "I polled my students and asked parents how many used the website at home because I didn't want it to be a lot of work for nothing." She found that over half the class used her website at home at night to look at homework assignments, announcements, and the calendar. She updates her website daily.

When asked how technology is being used, Ms. Norris, a sixth grade teacher, said that an easier question would be to ask how it is not being used. She said,

> We focus on the content, but think of how it can be enhanced with the use of technology. We teach the Standard Course of Study (the mandated curriculum for North Carolina), but do not force the technology. We all use reflection to ask if I could have used technology, or how it worked. Overall, technology is systemic now.

I saw students using technology in large group instruction, in small groups, and in centers. I saw students using it for projects and presentations. Ms. Reavis, a fifth grade teacher, said, "They know how to find information and they are learning how to evaluate if it is a valuable source or not." I also saw teachers using technology for locating teaching resources. I saw students using technology in the computer lab, with mobile carts in the classroom, and with classroom equipment such as the projector, digital camera, interactive whiteboard, and document camera. I saw technology used in every classroom I observed, including music. Ms. Vannoy, the literacy coordinator, said, ". . . Every lesson I do just about for every group every day, even in literacy, at some point we're using my Smartboard and my projector and my laptop and it's so much more interactive. . ." Ms. Gamble, a first grade teacher, said, "I don't know how I taught without it." When talking about what she would do if she did not have the technology, Reavis, a fifth grade teacher, said, "I'd have to go out and buy my own stuff!"

Ms. Gardner, a second grade teacher, described her morning to me as we talked at lunch time. She started the day with using the laptop, projector, and interactive

whiteboard to demonstrate the center activities. The children used computers in the centers. Math came next, where Ms. Gardner used Kidspiration to teach regrouping. Students interacted with the whiteboard to practice the math skill. Later, she used a PowerPoint presentation she had created to teach problem solving in another curriculum area.

Most of the interviewees commented on the fact that the technology has changed the way they teach. Ms. Vannoy, the literacy coordinator, reflected what many teachers told me when she said, "I had no idea that it was going to really open up the doors and the type of teaching that it has allowed us to do." Even though they were quick to say that the technology is just a tool, the teachers stated that it has made their teaching much more creative and interactive. Teachers also said that students have taken more charge of their learning now and have become more self-directed.

As teachers explored new ways to use the technology with students, they shared their ideas on and across grade levels. They not only shared these with other Westwood teachers, but with other schools in the district and throughout the country at national conferences. Other schools in the district are now getting some of the same equipment that Westwood has. Teachers from those schools are observing and learning from the Westwood teachers. Ms. Vannoy, the literacy coordinator, thought it interesting that those visiting teachers want to know what to do with the technology and the Westwood teachers do not know what they would do without it!

Westwood is also sharing its knowledge and equipment with the community. The computer lab is frequently open to parents and children to work and learn together. On

one of my visits they had a night for focusing on using technology for writing. A literacy person from the school collaborated with a university faculty member to work with parents and students to improve technology and writing skills.

As teachers described to me the many ways they use technology, it was clear that they consider it a tool for enhancing teaching and learning. The important thing, they indicated, was how it is used to teach the curriculum. The curriculum is the focus, not the technology. The teachers appreciate that the professional development is focused on integration into the curricular areas. When talking about the instructional technology, Mr. McClure said, ". . . it doesn't matter how much you have, but what you do with what you have." He went on to say that collaboration and the sharing of ideas helped teachers find ways to use the technology effectively.

Collaboration is occurring on many levels at Westwood. All interviewees saw it as basic to the success of the model. The next chapter will describe the process at Westwood of learning how to collaborate.

CHAPTER V

"THERE IS NO 'ME' OR 'I' IN TEAM"

The second important theme that emerged from the study and is also reflected in the motto and vision statement of Westwood is that of collaboration. Everyone I interviewed talked at length about its importance and how it had developed over time. They all attributed the high level of collaboration to Mr. McClure, who told them, "There is no 'me' or 'I' in team." Collaboration is an important piece of the IMPACT model and was included in the IMPACT inservice instruction. This was a feature that attracted Mr. McClure to the grant. He is an avid proponent of collaboration and said that it was one of the great benefits of the grant. Collaboration was a thread that ran through my interviews with Mr. McClure and with the teachers. They felt that the power of collaboration was critical to the success of the grant. This chapter will trace the development of collaboration as described to me by Mr. McClure and the Westwood faculty. McClure's role, which was found to be a key to the success of Westwood's collaboration, will be highlighted.

Merging Two Faculties

Mr. McClure knew the importance of building relationships, especially when consolidating two school faculties. He told me how he worked to build community even when they were one school in two locations. He described how that first year, even though it was difficult trying to begin a technology initiative in separate sites, it really

afforded them an opportunity to merge two close "families" into one. McClure and the social committee planned a number of intentional opportunities for the faculties to come together and begin to get to know each other. Social activities, such as a picnic and hike, were planned so faculties could mingle outside of school. They planned movie nights where they went to a restaurant for dinner and then enjoyed a movie together. The faculties enjoyed a joint Christmas party. Sometimes spouses were included in the social events, so families could get acquainted. One teacher commented that Mr. McClure believed in hard work, but he also made sure they had fun. McClure felt that staff needed to enjoy fun times together before formal collaborative professional development began.

School events also included opportunities for faculties to mingle. During joint inservice sessions the first year, the small groups included teachers from both schools. Team building activities were planned. Once they were in the new building, other activities helped teachers get to know each other on a more personal level. For example, teachers posted collages outside their doors to show aspects of their personal lives. Mystery biographies were emailed with interesting facts that revealed something new about the person.

As the staff learned more about each other, friendships began to form and the Westwood faculty began to emerge. They started developing a collaborative spirit that has continued to grow. Ms. Brown, a third grade teacher, said that collaboration really improved after the faculties moved into the new school. She said that access to the same tools and resources made it easier to collaborate. Ms. Ashley, a kindergarten teacher, stated that the result was that they became a caring family, supporting each other. She

tearfully said, “This is the best group of people that could work together. I feel very passionate about this.”

The most important thing that Mr. McClure did, in the eyes of the teachers regarding collaboration, was to create a master schedule for the two schools with common planning time for every grade level. This allowed the teachers to begin to work together in planning instruction. Even though it involved traveling, the teachers began to bond and see the advantages of working together. Sloane, a teacher assistant, said that at Fleetwood there was usually only one teacher at a grade level, so the Fleetwood teachers were thrilled to have someone else with whom to share ideas. Yet, all interviewed said that learning to collaborate was not always easy.

Learning to Collaborate

In talking about the role of Mr. McClure in the collaboration process, Ms. Taylor, teacher of academically and intellectually gifted children, said, “He supported and expected it. He knew that change comes at different paces with different people and that was the same with collaboration.” The staff knew that it was expected. There was formal professional development on collaboration provided in the IMPACT grant, but Mr. Norris, the technician said that the faculty had to figure out a lot of it for themselves. Mr. McClure used a rubric from the IMPACT model to assess how well individuals were cooperating in teaming. If necessary, he would add it to a teacher’s Professional Development Plan. He knew, however, that it was a developmental process and that it would take time. He said that it changed the way they talked and that it impacted instruction. Some personalities meshed better than others, requiring an occasional move

of teachers to different grade levels. One grade level had a particularly difficult time getting started and really did not want to make the effort. They had to build trust, which they said was a difficult task. Now they reported that they have created a bond and are very close. All teachers are seeing the benefits of their hard work in learning to collaborate.

Teachers have 40 minutes of planning time a day, but as grade levels, were required to meet at least once a week for collaborative planning. They kept agendas and minutes of their meetings for Mr. McClure to review. Teachers reflected on their meetings to self-evaluate their progress in learning to collaborate. Mr. McClure said, "A few good teams have sort of led the way. They've helped others to see the benefits." Different grade levels are at different stages of collaboration even now, but say they are comfortable with that. Ms. Hutchinson, a fifth grade teacher, explained that there are multiple ways to collaborate. The same model does not work for every team. However, they share models and adapt ideas to their own situations.

Along with expecting collaboration, Mr. McClure encouraged and facilitated it. The teachers all said that the most important way he facilitated their collaborative work was to keep the master schedule after the schools merged. The grade levels all continue to have common planning time. He also provided one full or half day each nine weeks for teachers to do long range planning. They were allowed to meet off campus if they chose and the grant paid for substitute teachers to cover the classes. This released time provided for additional bonding and time to develop technology rich units of study. Specialists meet with grade levels to plan, as well as meet with each other as a group for developing

ways to support instruction. Specialists also had released time to meet as a team. Teachers all said that collaborating takes additional time and they are grateful for opportunities built into the school day. The current principal hopes to find the resources to continue to provide the released days.

When I asked Mr. McClure how he fostered collaboration, he replied,

> I think you have to be an example. You've got to model the kind of behavior you expect to see in your teachers and staff. You've got to show that you really believe in collaboration, that you mean it. Training is very important, but modeling is necessary.

He went on to say that he modeled collaboration by being a good listener. He also expressed his opinions, but in a non-threatening way. He made sure that everyone on every team was involved. He was an active member of the leadership teams, but shared the decision-making. He modeled how to be a good team member.

Results of Collaboration

Every teacher enthusiastically talked about how well collaboration is working now. Teachers work together on grade level, across grade levels, and with the specialists. They put new ideas on the server, making them available immediately for all to see. Teachers have found that sharing ideas has improved their instruction, but collaborating has done more than that. For example, one team meets regularly to discuss individual students, not just for instructional planning purposes, but to share ideas on how they can better reach the students behaviorally and emotionally and help parents work with their children. Ms. Ashley, a kindergarten teacher who was recently named Ashe County

Teacher of the Year, said she stated in her portfolio she submitted for the honor that her vision for the future is that everyone collaborates as well as the Westwood staff.

I heard time and time again how collaborating has capitalized on the unique strengths of teachers. Ms. Ashley, a kindergarten teacher, said it best when she said, ". . . by collaborating and working together, it strengthened all of us." Ms. Norris, a sixth grade teacher, said, "We have all taken different leadership roles, based on our strengths as part of the process of working as a team." Teachers at different grade levels stated that they are better able to differentiate instruction because of collaboration. They share ideas and even teach collaboratively. The grade levels now have three years worth of unit plans kept in binders, which they continually adapt and improve. They continue to rely on and learn from each other. Teachers told me that the biggest change from collaboration is that it has brought the staff together. They said that they share a collaborative spirit. Mr. McClure credited the IMPACT model of collaboration for helping to bring the schools together. Many remarked that collaboration is a habit now. They do not even realize they are doing it. Ms. Norris, a sixth grade teacher, explained that they are not always aware they are working together because they do it daily, even at lunch.

Collaboration also is occurring in the oversight committee. All major decisions and many minor ones regarding the grant are made by the MTAC. One teacher explained that Mr. McClure could have made those decisions, but he chose to let the committee make them. She said that he had good ideas, but always encouraged the ideas of others. He wanted shared decision making. Mr. McClure said that he gave a lot of responsibility to the MTAC and considered himself as a co-leader, not the leader. He said, "They would

turn to me often if they wanted a final answer and would listen to my input. If things couldn't be resolved, I'd make a decision, but most of the time things worked on its own."

When asked what would happen if they disagreed with him, he replied,

> I was OK with that as long as it wasn't personal. Occasionally, we would vote, but most times we didn't even have to vote. We worked to iron out our differences and compromise. You know the team actually bought into it and were all seeing it from the same angle. There were very few major disagreements, just minor ones. Some had to do with personnel and I wasn't at liberty to talk about those, but with other issues we would work through it and discuss it as long as we needed to. Sometimes we would come to consensus and that's what we tried to do. We would always support it if the group decided on it and we would tell the staff. We communicated through minutes and what we said and did.

Collaboration and the use of technology are the two things that every teacher said they would not want to teach without. Both have become a natural part of their professional lives. The potential for collaboration and vision including technology is considered when interviewing prospective teachers. The faculties want to ensure that new teachers will be a good fit and will commit to the vision. The development of both vision and collaboration has required time and effort on the part of every teacher, but participants were all quick to say the investment has been worth it. They think that they

are, indeed, preparing students for the 21st century. My interpretations of the data in this study confirm that and will be explored in the next chapter.

CHAPTER VI

THROUGH THE EYES OF THE OBSERVER

It was my intention to clearly and accurately describe what an exemplary site for technology integration looks like and by identifying and describing the characteristics, I had the opportunity to interpret what I think the findings tell us. Since the primary intent of my study was to examine the role of the principal, this chapter will include my interpretation of Mr. McClure's impact on the successful technology initiative, as well as insights into his leadership style. My interpretations are centered on vision, buy-in, professional development, leaders, technology use, and collaboration. These are the themes I discovered in the study and will serve as the structure for this chapter.

I will position my thoughts within the current body of related research on technology, leadership, and change. Among the most current literature on technology leadership is the work done by The International Society for Technology in Education (ISTE). They developed the National Educational Technology Standards for Administrators (NETS-A). Though not research based, Don Knezek, the CEO of ISTE, told me they represent the thinking of leaders in the field of instructional technology (personal communication, January, 2005). ISTE (2002) identified six standards for school administrators (Appendix B). Standard I is Leadership and Vision, which will be discussed in the first section of this chapter, which is on vision. It seems to be the standard that was most obvious to me throughout the study. Standard II, also observable,

deals with teaching and learning and will be addressed in the section in this chapter on technology use. Standards II through VI are important and were demonstrated, but it is the first two that are significant in describing Mr. McClure's role in institutionalizing technology integration and will be addressed in this study.

Vision

We know from the work of Ringstaff and Kelley (2002) that in order for technology to be systemically implemented, it must be part of the school's vision. A study by Hayes, Schuck, Segal, Dwyer, and McEwen (2000), which involved interviews and observations at six schools in Australia, emphasized the importance of the technology vision in the implementation process. Not only did they see the importance of the principal being involved in the development of the vision, but also in the principal sharing the vision with the staff.

Shared vision can not be underestimated. A study by Brockmeier (2005) involved surveying principals in the state of Florida regarding their expertise in facilitating technology integration. The results showed a lack of ability to create a shared vision which kept them from achieving the promises that integrating technology hold. A study by Russo-Converso (2000) of a Florida school's intervention reiterated the need for participants and stakeholders to share the vision. Surveys and interviews there revealed that all the leaders of the project underestimated the significance of buy-in to the vision and sustained commitment. This was critical to the success of the innovation.

Shared vision is also included in ISTE's work. In the development of standards for school administrators, ISTE named vision as its first standard. NETS-A Standard I

states that leaders should inspire vision for comprehensive integration of technology and should foster an environment and culture to achieve the vision (ISTE, 2002). There are six parts of Standard I; however, the first three, IA, IB, and IC are the most descriptive of Mr. McClure and will be addressed here. Standard IA states that leaders facilitate the shared development and communication of the vision. It goes on to say that the role of the principal is to ensure that all instructional strategies, including technology, have been addressed and that stakeholders have a voice in the process and help to communicate the vision (ISTE, 2002).

It was very clear that Mr. McClure had the initial vision, along with Darnell. It is also evident that he knew the importance of sharing the vision with staff and involving them in its development. Mr. McClure began sharing the vision with the technology leaders in the school. Together they made a powerful team. Staples, Pugach, and Himes (2005) learned from their case studies that while the principal's role in defining and communicating a clear vision for technology is important, there is also a need for other technology leaders to scaffold sharing and implementing the vision. Mr. McClure was astute in identifying and developing his leaders to develop and share the vision. Together, they developed a technology plan based on their shared vision.

NETS-A Standard IB says that the leader should maintain an inclusive and cohesive process to develop, implement, and monitor a dynamic, long-range, and systemic technology plan to achieve the vision. It goes on to say that the principal's role is to work with stakeholders to develop the plan based on instructional goals, to provide for feedback, to communicate that plan and monitor it for ongoing evaluation (ISTE,

2002). Mr. McClure was an active member of the planning team, but shared the decision making from the onset through implementation. Together, they operationalized the plan and monitored its progress.

Barnett and McCormick (2003), in a qualitative study of four schools in Australia, found that while the vision provides direction and purpose, the plan for achieving the vision helped to bind people together and establish ownership. It appears that Westwood's technology vision and plan helped to merge the two faculties during that first year when they operated in two schools. Mr. McClure and the teachers said that having a common vision helped to build community. Through shared instruction and meetings, they formed a bond for a common cause and increased their commitment to work together and make the plan a success.

One reason that teachers bought into the plan was that Mr. McClure was highly respected as an educator and caring leader. This seemed to be key in gaining support for the vision. I heard several times that Mr. McClure had been an excellent middle school language arts teacher. His knowledge of pedagogy and focus on instruction kept the initiative grounded. He believed that effective uses of technology would enhance pedagogy. Teachers knew that McClure had researched the IMPACT model and the possibilities of technology integration and because they trusted his leadership, they were willing to share the vision. The staff also knew that he had their best interest at heart, as well as what was best for the children. They talked about his care and love for them, so they felt secure in trusting his vision and following his lead.

McClure realized that not everyone was ready to embark on this new initiative, but by getting those interested to commit to experimenting with the new equipment, he developed a critical core of early adopters. McClure knew that the focus on collaboration would result in the interest in technology becoming contagious. He led in his usual gentle way, not forcing, but with the help of teacher leaders and allowing teachers to learn at their own pace. McClure gave teachers the freedom to experiment and set the tone for risk-taking.

NETS-A Standard IC says that the leader should foster and nurture a culture of responsible risk-taking and promote innovation with technology (ISTE, 2002). The teachers had confidence in Mr. McClure's leadership and he had confidence in their ability to teach. McClure's confidence in his teachers was exemplified in his giving them the freedom to explore and take risks. Mr. McClure's trust in the teachers inspired them to want to succeed. His continuous praise and encouragement seemed to result in the teachers wanting to make him proud. It is hard to disappoint someone who is cheering you on. Mr. McClure's support seemed to be an important factor in gaining buy-in into the vision and successful implementation of the initiative.

Buy-In

Recognizing the need to let teachers progress at their individual rate was critical to the buy-in of the vision. As teachers, we take children where they are and set expectations accordingly, but as adults we often expect the same progress from everyone. In this case, moving staff at the same pace would have been extremely frustrating for some, who might have then become resisters. By creating an environment where risk-

taking was encouraged, but not forced, teachers stayed within their comfort zone and continued to learn. Praise and encouragement from McClure kept the teachers moving forward and reinforced their belief in the possibilities of technology use for instruction. McClure's clear expectations sent the message to teachers that he wanted them to grow and be the best they could be. His expectations for the grant, along with their respect for him, resulted in hard work in order to make the initiative successful.

Modeling his commitment to the initiative showed teachers that McClure truly believed in it. They respected him for not asking more of them than he expected of himself. He was a leader, but also a learner along with them. This helped to establish the staff as a community of learners, growing together to strengthen the program, thereby benefiting students.

Mr. McClure's personality also seemed to be instrumental in gaining buy-in. He impressed me as very knowledgeable, yet totally unpretentious. I would describe him as warm, friendly, and very genuine. His gentle manner and desire to help came across in our conversations. He is such a nice person and so excited about Westwood that I wanted to work for him! Sloane, a teacher assistant, said that Mr. McClure is the nicest man she has ever known. She said, "We respected him because we knew he loved us. We would have done anything for him."

McClure epitomizes what Brubaker (2006) describes as the charismatic leader, one who has the gift of being able to influence others. Mr. McClure's manners and active listening made me feel that he valued my work. He accommodated me by fitting my interviews into his busy schedule, including a late afternoon following a hectic day of

meetings with the North Carolina Department of Public Instruction. He even offered to travel to meet me rather than my driving to his location.

These acts of kindness, as Brubaker (2006) calls table manners of leadership, establishes the kind of rapport that we had that I felt was built on trust and respect. I only met McClure twice, but I sensed that he is a genuine, caring leader, which the teachers confirmed. You just can not help but like him! These are the behaviors and attitudes that Brubaker says can make a difference in the culture of the school. It seems that Mr. McClure used his gift of charisma, not only to gain buy-in for this project, but to help teachers grow and be the best teachers they could be.

Professional Development

State and national technology standards for teachers were used to guide technology professional development at Westwood, but equally important were the needs assessments at the school level. Mr. McClure allowed the technology leaders to plan professional development based on the needs of teachers and focused on instruction. Teachers felt part of the process since their voices were heard and sessions were meaningful to them. Sessions explored ways to use the technology for instruction. Instruction was the focus, rather than the technology itself. It seems that because the teachers were learning how to use the technology as a tool, they were motivated to continue attending sessions. They could go back to their classrooms and use it immediately, then explore additional ways to use it for teaching the curriculum.

As the grant funds were being spent and equipment was arriving, decisions needed to be made as to the timing of professional development sessions. While it was

important for the equipment to be used, technology leaders wanted to avoid overwhelming the teachers. Therefore, sessions were offered over time. Though they were only mandated when new equipment was distributed, teachers attended most sessions. It seems that two factors contributed to the high level of participation. One was the clear expectations set by Mr. McClure, reflected in his involvement in the technology professional development. Also, the non-threatening tone was invitational. Again, modeling the behaviors he wanted to see in his teachers was effective. Also, it seems the culture of the school was hard work and the teachers trusted that following McClure's lead would make them better teachers. McClure's gentle manner was not to force, but his gift of charisma (Brubaker, 2006) encouraged them to participate.

The decision to use staff development funds to develop the master's cohort seems to have increased enthusiasm for the use of technology, as well as developed additional technology leaders. Their expertise will be invaluable as new teachers are trained and plans for sustaining the initiative are developed. While a large portion of staff development funds was spent on eleven teachers, it seems the investment will pay off as the school now has a cadre of supporters and trainers. If the "train the trainer" model works, technology staff development will continue to be successful.

The support provided by the technician should not be overestimated. If equipment does not function properly, enthusiasm will wane. Technology leaders were trained to integrate technology into the curriculum, not to maintain it beyond basic trouble-shooting strategies. When the grant ended, Westwood found a way to keep the technician on staff.

This, too, will be important to the sustainability of the program, especially as the equipment ages and new equipment is purchased.

Leaders

Developing teachers as leaders benefited everyone. The principal can not have all the ideas, so allowing and appreciating the voices of others create a true learning community. Teachers seemed to benefit from being respected professionally and appeared to thrive in a non-threatening environment where ideas are exchanged and responsibilities are shared. This is the basis of the collaboration model at Westwood. The teacher leaders also made the decisions regarding the grant. The MTAC solicited input from the staff, made the decisions, and then communicated them with the staff.

It seems that this shared leadership model requires a principal who is secure and self-confident enough to relinquish authority and let others lead. Mr. McClure was a veteran principal who had earned the respect of his staff. Perhaps a beginning principal might have more difficulty with sharing decision-making. Mr. McClure was quick to say, however, that he assumed final responsibility and that there were decisions, such as those involving personnel, that only he could make. The teachers said that he tended to be a "guide on the side", but could intervene when needed. That balance of sharing decision-making and yet knowing when not to seems to be a delicate one that Mr. McClure managed well.

There was the one teacher, however, who did not relate well to Mr. McClure's leadership style. She wanted decisions made quickly and efficiently and clearly stated to the staff. She was one of the technology leaders and found the process of shared

leadership inefficient and frustrating. She knew the expectations, but also wanted to know exactly how to reach them. Knowing the "what" and "why" was not enough for her. She needed to know the "how". She was the only participant who did not think McClure's leadership was an important factor in the success of the grant. She said she was a "take charge" person and wanted to see "take charge" administrative styles. She described Mr. McClure's style as being "laid back". Though she was quick to say that Mr. McClure was a wonderful person, she said he was not the type of principal she flourished under or that the grant needed. She said he played an instrumental role, but no more so than the original technology leaders. She did not feel that McClure's leadership was responsible for the success of the grant.

The other teacher who commented on needing more direction said it was a matter of degree. She needed more than Mr. McClure gave during her first year teaching and perhaps even now, but seemed to be functioning well with the technology and has become a real leader. Even though she would have liked more direction, she saw Mr. McClure as playing a key role in the success of the initiative.

Mr. McClure shared the results from his Leadership Practices Inventory that was given to 38 people. On a scale from one to ten, with ten being the highest, his scores ranged from 8.1 to 9.7. Eight meant "usually" and nine meant "very frequently". These are high scores; however, there was a pattern in the inventory that the ratings of one or two respondents were not in keeping with the others. Mr. McClure's comment to me when he agreed to send me the results was that while he was pleased with the

information, he regretted that he was unable to reach one or two teachers. I strongly suspect the outliers were the same teachers who were also outliers in my study.

After probing the two teachers about their view of Mr. McClure's leadership, I attribute their disparate feelings regarding his leadership to my belief that people respond differently to different leadership styles. Both teachers needed more direction, but are highly successful in their use of technology now. They indicated that more direction was needed for them during implementation. It seems that Mr. McClure tried very hard to accommodate everyone on staff and most of them related to him extremely well. He wanted his staff to be happy and for the most part they were. I feel that if he had sensed that one or two teachers needed more direct leadership from him, he would have found ways to accommodate them, as well. After all, the highest score on his leadership inventory was for "treating others with dignity and respect". His lowest score, the only 8.1, was for asking for feedback regarding his effect on teacher's performance. Although this is not a low score, perhaps this is an area he could address.

The inventory indicated that Mr. McClure's leadership style is that of enabling and encouraging, which is in keeping with my findings. Mr. McClure seemed to be exceptionally good at identifying the strengths of his teachers and finding ways to improve pedagogical practices. He recognized and encouraged strengths even when the teacher was not aware she had them. This was evident when teachers related examples of McClure asking them to attend a certain workshop and then sharing their new knowledge with the staff. He was good at discovering the talents of teachers and discerning ways to help them grow. Then he encouraged them along the way.

Technology Use

NETS-A Standard II is about Learning and Teaching (ISTE, 2002). It says that leaders should ensure that curricular design, instructional strategies, and learning environments integrate technology to maximize learning. Mr. McClure's focus on instruction seemed to be instrumental in establishing and maintaining the philosophy that technology is a tool to teach the curriculum. As WestEd (2002) found in their review of research, technology is not a goal, but a tool for accomplishing instructional goals. Westwood integrated the technology plan with the other plans for school improvement. Mr. McClure and the technology leaders kept the technology integrated into the instructional plan. Perhaps this belief that technology can enhance student learning made buy-in easier. A study by Ertmer, Ottenbreit-Leftwich, and York (2006) found that teachers feel the single most influential factor for using technology was their strong commitment to helping students learn. Westwood teachers shared that commitment, so viewing technology as a learning tool motivated them to integrate it into the curriculum.

Standard IIA says that the principal's role is to assess how technology is selected, used, and evaluated (ISTE, 2002). McClure, along with the MTAC, based their acquisitions on instructional needs. Teachers had a voice in deciding what they needed. They had ongoing evaluation of how the equipment was being used. This once resulted in moving equipment to another grade level where it would be more appropriate.

NETS-A Standard IIB says that the leader needs to foster collaboration to integrate technology into instruction (ISTE, 2002). Mr. McClure required teachers to develop collaborative technology rich units of instruction which kept them focused on the

curriculum. Teachers commented on McClure's knowledge of the elementary curriculum, even though his background was middle school language arts. His attendance at grade level meetings and presence in the classroom probably contributed to his knowledge. Again, McClure's praise and encouragement seemed to motivate teachers to increase effective uses of technology. The focus on collaboration was one of the reasons Mr. McClure was interested in the IMPACT grant. He believed in it and made it an expectation. Collaboration was one of the strongest themes in this study and was mentioned by every interviewee as being integral to the success of the grant.

NETS-A Standard IIC deals with the importance of a learner centered environment. It says the principal's role is to encourage technology to be used for meeting the needs of individual students through accessing and analyzing data on student performance (ISTE, 2002). Mr. McClure's main focus was always what is best for students. That created a student centered culture. One of the reasons McClure was attracted to the grant was because it was based on a student centered philosophy. He looked for ways the technology was used to help students, such as using Palms to assess student growth in the primary grades. He encouraged those teachers to share how technology was used for gathering data to inform decisions on student growth.

Standard IID says the role of the principal is to encourage teachers to use technology to develop higher order thinking skills (ISTE, 2002). The teachers confirmed that the technology gave students opportunities for choice in developing projects and sharing learning with the class. Problem solving was the focus and putting the technology

in the hands of the students empowered them to access information and make decisions related to their learning.

Standard IIE says that the principal needs to provide for and encourage ongoing professional development that institutionalizes technology integration (ISTE, 2002). The grant provided the funds, but McClure and the MTAC planned the sessions based on the needs of the teachers. In addition to that, Mr. McClure looked for examples of effective uses of technology in his observations and recognized them at faculty meetings. He encouraged teachers to visit and observe best practices. Sharing of ideas reinforced the importance of collaboration.

Perhaps the most important effect of Mr. McClure's leadership on technology use was to encourage and foster reflective thinking. By modeling reflection, he demonstrated its value. McClure created opportunities for reflection and the technology leaders required it of all teachers. Self-efficacy was fostered in teachers by keeping a reflection log of their technology use. McClure also expected teachers to reflect on their collaboration. This emphasis on reflective thinking now seems to be a habit of mind and extends to all other areas of practice for both teachers and Mr. McClure.

Collaboration

The IMPACT model is based on collaboration which was one reason Mr. McClure was interested in pursuing it. His belief in collaboration is reflected in his shared leadership style. Not only did McClure collaborate with his teacher leaders through committee work, but he expected all teachers to collaborate on grade level and beyond. Mr. McClure and the teachers said that collaboration was basic to the success of

the grant. It seems that sharing ways to use technology was instrumental in moving all the teachers forward, especially the reluctant ones. Modeling for each other and developing collaborative units probably helped improve pedagogical practices. Mr. McClure not only encouraged this, but provided the time to make it happen. He sees himself as a facilitator which is apparent in the ways he created common planning time and provided released days for long-range planning.

The first year of the grant was challenging with trying to begin implementing the grant in two locations. However, Mr. McClure saw that time as a blessing in that he had a year to build relationships among faculties. He believed that was fundamental to being able to collaborate. I found Mr. McClure to be very warm and personable. I can see how he modeled a friendly, approachable attitude and set a positive tone for consolidating the schools, operating as one team, and collaborating with each other.

Mr. McClure's willingness to listen and communicate seemed to encourage the same behavior in the staff. This helped to build a strong sense of community in the school and set the tone for collaboration. The teachers commented frequently that they could talk openly with Mr. McClure anytime. McClure cared about his staff personally and supported them in any way he could. An example of Mr. McClure's caring was when a teacher's mother died, he arranged to cover classes so all teachers and assistants could attend the funeral and visit at the home afterward. McClure told me he wished he had more time to support teachers outside of school, such as making more hospital and home visits when family members were ill. He did as much of this as time allowed.

McClure genuinely cared for the Westwood family and they still know it. He set the tone for caring and trust on which collaboration was built. Starratt (2003) says that being an educational administrator takes not only brains, but heart because the work is all about caring relationships. The underpinnings of these relationships, caring and respect, must be cultivated and purposeful. They are the building blocks of collaboration. As the school's leader, the administrator needs to be committed to the ethic of caring and have, not just the emotion, but the skills to practice it (Gordon, Benner, Noddings, 1996). Mr. McClure created a school culture of caring and working together to create a supportive environment. He modeled being a team player and the importance of caring and collaboration. It seems that his model of caring contributed to the merging of faculties and the success of collaboration.

Trust is a word that I kept hearing from teachers. They said that building trust was also an important foundation for collaboration. The teachers trusted Mr. McClure as their leader. Bennis and Goldsmith (2003) list four qualities that engender trust. The first is having an inspiring vision which is clear, articulated, and attainable. Mr. McClure had this vision which he shared and communicated. The second quality is empathy which Mr. McClure demonstrated through his listening and acts of kindness. He connected emotionally and appeared to bring out the best in people. The third quality that engenders trust is consistent behavior based on core values. The teachers knew that Mr. McClure's primary concern was always what is best for students. The last quality is integrity. The teachers knew that McClure is ethical and adheres to a high standard of conduct based on

his core values. This was described to me many times in examples of his empathy for others and wanting the best for teachers and students.

The teachers believed that the trust was reciprocated. The teachers seemed to sincerely believe that Mr. McClure trusted them as professionals. This was evident when he allowed them the freedom to explore with technology. McClure's faith in his teachers probably set the tone for teachers being able to build trust with each other. Again, McClure's positive attitude and democratic leadership style modeled what he wanted to see in his staff. Once trust was established, collaboration began. I saw it happening in formal and informal ways. The teachers seem to depend on it now and realize that collaboration has made them better teachers.

Conclusions

It seems to me that the critical factors contributing to the success of the grant were:

1. Vision
2. Modeling
3. Allowing teachers to progress at their own rates
4. Freedom for teachers to explore
5. Focus on instruction and needs of students
6. Teacher leadership
7. Shared decision-making
8. Professional development
9. Collaboration

Each of these factors seems to be a result of Mr. McClure's leadership. Teacher leaders were also integral to the success in many ways, but it appears that Mr. McClure's involvement was central. He set the tone and expectations, while facilitating and encouraging every step of the way.

From 1995 to 2000, the SouthEast Initiatives Regional Technology in Education Consortium (SEIR-TEC) studied 12 schools and their technology integration. In their lessons learned, they confirmed what the research literature shows, that leadership is probably the single most important factor affecting the success of technology integration. They identified six things that a school leader must do (Byrom & Bingham, 2001). It was interesting that all their six ingredients of good technology leadership were among the factors listed above that I found to be critical in the success of Westwood's technology initiative. My list of critical factors is not prioritized, but is ordered for discussion purposes, to match the list created by SEIR-TEC.

The first ingredient for successful technology leadership listed by SEIR-TEC is for the principal to start with a vision (Byrom & Bingham, 2001). This is also among my list of critical factors for successful technology leadership because it was a prominent theme throughout my interviews. Mr. McClure was the only principal in his school district who was interested and excited about the grant. He and Ms. Darnell had the vision and inspired the staff to share it. McClure knew what the possibilities are for using technology for teaching and learning. He said he was interested in the grant because technology was another way to address instruction. McClure also stated that the Westwood faculty has always been innovative in trying to find new ways to improve

instruction. He emphasized that they had to find ways to do things better. Mr. McClure said that he and the teachers had some interest in technology before the grant, but were struggling with effective ways to use the minimal amount they had. His involvement in the Principals Executive Program's Principals as Technology Leaders professional development helped to shape his vision. When considering the grant, he said, "It was really what I believed in – collaboration, working together as a team, student oriented, project oriented, helping one another as a team." He said that the IMPACT model was commensurate with the philosophy at Westwood. McClure communicated his vision in the grant application and when it was awarded to Westwood, he put his vision into action. McClure and the MTAC worked with teachers to achieve the vision.

The second ingredient listed by SEIR-TEC is to lead by example (Byrom & Bingham, 2001). I listed this second factor as modeling, another recurring theme throughout my interviews. Mr. McClure said, "I think you have to be an example. You've got to show that you really believe in collaboration, that you mean it. Training is very important, but modeling is necessary." McClure also modeled hard work and a positive attitude. He told me that a "can do" attitude was necessary. He said that change is not easy, but he knew that teachers would soon see the benefits of technology use. The staff expressed their appreciation for his encouragement, praise, and positive attitude. Mr. McClure stayed focused on his vision. He recognized best practices and encouraged sharing. He participated in professional development and expected to see technology used in the classroom. He modeled effective uses of technology for his own productivity, as

well as an attitude that reflected what he believed are the promises that technology holds for improving instruction.

The third ingredient listed by SEIR-TEC is to support the faculty (Byrom & Bingham, 2001). I addressed this as third and fourth in my list of factors for effective technology leadership. Number three on my list is allowing teachers to progress at their own rates. Mr. McClure identified the technology leaders early in the implementation process. They were the early adopters, but recognized that the other teachers were in varying stages of developing the knowledge and skills needed for using technology effectively in their teaching. Needs assessments helped to determine what professional development was needed and when it should be introduced. Equipment was given out incrementally with time for teachers to practice, so as not to become overwhelmed. Mr. McClure was clear in his expectations of technology use by teachers, but recognized that teachers needed to grow at their own rate. He allowed them to grow developmentally, minimizing frustration, and maintaining a positive attitude toward the grant implementation.

The fourth factor on my list for effective technology leadership is allowing freedom for teachers to explore. Once teachers received equipment and instruction, Mr. McClure gave them the freedom to discover new ways to use it for improving teaching and learning. He had confidence in his teachers and trusted them to develop and share new ideas. McClure created a non-threatening environment that encouraged risk-taking. He modeled and encouraged reflective thinking and sharing ideas. McClure recognized best practices and fostered exploration with his encouragement and praise. McClure

encouraged teachers to collaborate and share knowledge with each other, as well as at other schools and at conferences. He communicated what he expected, but did not tell teachers how to do it. All but two teachers welcomed the freedom to explore on their own. Those two teachers wanted more explicit directions in how to teach with technology.

The fourth ingredient identified by SEIR-TEC for effective technology leadership is to stay focused (Byrom & Bingham, 2001). I listed this as number five, focusing on instruction and the needs of students. Mr. McClure maintained a focus on the vision. His work was grounded in what is best for children. McClure believed that using technology as a tool for teaching the curriculum would strengthen teachers and students. Mr. McClure and the technology leaders kept the focus of professional development on integrating technology into the curriculum. Teachers saw technology as a tool, not a panacea. When they planned collaboratively, the focus was instruction. They used technology where it fitted. Mr. McClure encouraged reflective thinking so teachers could improve their practice. He said that technology is a tool and that it does not matter how much you have, but what you do with what you have. He went on to say that we should use all the tools we have available for finding different ways to reach different children. His focus was always on improving instruction for students.

The fifth ingredient in effective leadership that SEIR-TEC identified was shared leadership (Byrom & Bingham, 2001). This is included in numbers six and seven in my list of critical factors, including both teacher leadership and shared decision-making. Mr. McClure created opportunities for teachers to develop as leaders and fostered their

development. He began the implementation process by identifying technology leaders and putting them on the leadership teams. He said it was critical to put the right people, those who believed in the possibilities of the grant, on the right committees. McClure said that he let the leaders see the direction he wanted them heading and let them become part of that. The lead teacher model was used to spark interest from other teachers. Lead teachers received the equipment first and explored ways to use it for increasing student achievement. As they shared their ideas and experiences, other teachers became enthused about the possibilities. Mr. McClure said that he facilitated the grant implementation by putting teachers in key roles. He emphasized the importance of depending on your people. When asked about advice to give others who might be interested in undertaking a technology initiative, Mr. McClure replied, "Develop your teachers as leaders because they have so much to offer."

An important part of developing teacher leaders is to share the decision making. This is number seven on my list of critical factors. Mr. McClure is a democratic leader who shared decision making with his leadership teams. He gave responsibilities to the MTAC and considered himself a co-leader. They made all the important decisions about implementation together. McClure said, "It was great to see them develop." He said that he gave input, but they made decisions as a team. If there were differences, they would work through them and try to reach consensus. They always supported group decisions and communicated with the staff. McClure said that he could not let his ego get in the way of decision making and listening to people. He said, "I consider this our school, not my school."

The last ingredient that SEIR-TEC identified is to use evaluation for continued professional growth. I included this in number eight on my list of critical factors, professional development. The most obvious way Mr. McClure promoted evaluation was through reflective thinking. He believed strongly in reflecting on practice. McClure practiced reflection and sometimes recorded his thoughts in a journal. He fostered reflective thinking in teachers by providing opportunities and encouraging it. The MTAC required teachers to keep reflective logs so they could improve their use of technology for instruction. At the end of the first year, Mr. McClure knew that there were many accomplishments regarding the grant, but that there was always room for growth. He said, "Status Quo is not good enough." At a faculty meeting, he gave pencils and paper to the staff and had them reflect on the year. He analyzed the narratives to find areas that needed improvement. McClure modeled and expected self-assessment. Teachers assessed their instruction individually and the grade levels assessed the effectiveness of their units of instruction. Teachers self-assessed through McClure's classroom observations and their professional development plans. Needs assessments served as the basis for professional development opportunities. Teachers were allowed to progress at their own rates and were encouraged to share their ideas and knowledge with each other. The focus of the sessions was always on how to improve instruction and to use technology as a tool to enhance teaching and learning. Self-assessment, as well as assessment of the IMPACT implementation, was an ongoing process and fed back into self-efficacy and program improvement.

I listed one additional critical factor, collaboration, as number nine. This might be the one that Mr. McClure and the faculty would say is the most important. It was a thread that ran through each of the other factors. The vision was established and revisited as a collaborative effort. Teachers modeled best practices for each other. They helped their peers to learn how to integrate technology while progressing at their own rates. The faculty shared ideas as they explored new uses of technology while focusing on instruction and student needs. Technology leaders collaborated as they shared making decisions. The MTAC planned training sessions collaboratively while focusing on the needs assessments of teachers. Mr. McClure knew the importance of collaboration, modeled it, and made it a clear expectation. During the interviews I heard as much about collaboration as I did about technology. Mr. McClure arranged common planning times for teachers for planning, assessment, and training. Specialists planned with grade levels, as well as with each other as a team. Teams were required to reflect on their progress in collaborating. I was told that now it has become a natural habit. Teachers are even teaching collaboratively. Mr. McClure said that collaboration is one of the great benefits of the grant. It has improved communication throughout the school. The teachers attributed the success of the technology implementation largely to leadership and collaboration.

The critical factors that I discovered, as well as those from the SEIR-TEC study (Byrom & Bingham, 2001), confirm that leadership is the key ingredient to successful technology integration. It was very apparent in the interviews at Westwood. Mr. McClure believes in the vision of effective instructional technology use and, though he gives credit

to his teachers for the success of the initiative, it seems that he should be credited for making it exemplary.

CHAPTER VII

THE VISION IS REALIZED

Summary

Mr. McClure and his media coordinator had a vision of how exemplary technology integration in a school would benefit students. The IMPACT grant gave Westwood the opportunity to purchase equipment, train faculty, and integrate technology into all areas of the curriculum. The technology plan became part of the total school plan, resulting in systemic change.

Mr. McClure's leadership was largely responsible for the success of the technology initiative. He selected and nurtured teacher leaders and shared decision-making with them. He believed in and facilitated collaboration which was an integral part of the initiative. McClure set the positive tone of the school by modeling excitement for the vision, focusing on the best for students, and encouraging the staff. He is a democratic leader who cared about and trusted his faculty. Together, they developed an exemplary program where technology is seamlessly integrated and is enhancing teaching and learning.

Regarding the work done by ISTE in the development of technology standards for administrators, I would recommend that the importance of developing teachers as technology leaders be included. This seems to be critical to Westwood's success, especially for sustainability. Also, understanding the change process seems to be very

important. The principal needs a clear understanding of what the process involves and needs to be able to communicate it to the faculty. Although collaboration is mentioned, it is a thread that runs throughout every aspect of implementation and can not be over emphasized. Reflecting on practice is mentioned, but also seems to be an important thread contributing to teacher growth and implementation. Adding or leveraging these items would facilitate institutionalizing technology innovation.

Outcomes

Teachers believe that the technology is benefiting students. They think it has been especially helpful in increasing reading and writing skills. Students are now technology literate and are able to retrieve and evaluate information. Teachers say the technology has empowered students by challenging them and giving them opportunities to explore. Students are more self-directed and self-confident with having choices of ways to use technology to share knowledge. Students are more engaged now that technology has made learning more interactive. The biggest change in students seems to be in attitude. Teachers say that students are motivated to learn. They are happy and want to come to school.

The teachers also say that the technology has helped them become better teachers. It has changed the way they teach. As Gamble, a first grade teacher, said, “It’s not just something else to learn, but a different way of teaching.” Teachers are better able to address individual learning styles and to differentiate instruction. They say their teaching is more student centered, hands on, and project oriented. Teachers are letting students

have more control of their learning and are focusing on higher order thinking skills. The development of technology rich teaching units has strengthened instruction and made them more creative.

Teachers say that technology has improved the school. Teachers have developed as leaders. Communication is better and collaboration is a natural now. It seems that teacher dispositions have changed. They say they are more confident because of the technology initiative and are more open to change. Gardner, a second grade teacher, stated that the teachers are happier now because teaching with technology is more fun.

In addition to benefiting students, teachers, and the school, the technology initiative is benefiting the entire school district. The school board plans to expand Westwood's model to other schools. The teachers hope all students in Ashe County will have access to the same technology. Teachers feel the technology will brighten the future of students in this low wealth county by motivating them and developing them into lifelong learners.

Challenges

The success of the technology initiative was not without challenges. The first was implementing it in two locations before the new school was completed. Merging the two faculties was challenging, but the grant gave them a common focus. They learned to collaborate, which was not an easy process.

The training also was demanding and, at times, even overwhelming. There was never enough time to explore, plan, and practice new skills. There are, and will continue

to be, new teachers to train. This will be done by the technology leaders and through peer tutoring.

The work of the technology leaders was especially time intensive. Westwood needed a position devoted to the administrative tasks related to the grant. There were surveys to be administered, documentation to be completed, and orders to be generated. Research on equipment was needed in order to spend funds wisely. Budgets had to be managed, repairs made, training planned, and fixed assets maintained. Public relations were needed to increase community awareness of the exemplary work at Westwood. The technology leaders assumed responsibility for these tasks along with their instructional duties, which was burdensome at times. Having a person to address these tasks would have been helpful.

Results of Study

My research questions have been addressed in detail throughout the previous chapters; however, this section will summarize the answers. While the influence of Mr. McClure on the technology initiative was the focus of my work, there is a wealth of related information on how the school became an exemplary technology site.

The overarching question for this study was: How did a principal influence the implementation of an instructional technology initiative in one school that has been recognized as an exemplary school for effective technology use?

In summary, Mr. McClure's influence was key to the success of the initiative. It was his vision, shared with the media coordinator, who drove the project. He created buy-in through his positive attitude, developed teacher leaders, and facilitated collaboration.

McClure created a non-threatening environment for teachers to learn and explore at their own rate. His expectations were clear, but he recognized that this was a developmental process. McClure was involved in all aspects of the initiative and made his expectations clear, yet he gave teachers the freedom to experiment. He modeled the behaviors he expected from teachers, such as collaborating, reflecting, and focusing on instruction. McClure encouraged his teachers through praise, recognition, and appreciation.

There was one teacher, however, who did not see him as key to the success of the project. She gave the credit to all the technology leaders equally. She prefers a leader who makes more decisions and gives clear directions on how he wants teachers to do what he expects.

There were other questions related to the overarching one that guided my study. They are all germane to the implementation process. I will address each one individually although they are all interrelated.

How did the principal lead? He led gently, democratically, with caring, and by example. He led by respecting teachers and expecting them to do their best, but giving them the freedom to find their way. He never forced them to use the technology, but made his expectations clear and encouraged them along the way. He gave teachers a voice and always made time to listen. He cared for them as individuals and trusted them to do what is best for children. He modeled the behaviors he wanted the teachers to exhibit. He did all he could to help teachers be the best they could be. Mr. McClure describes his leadership style as participatory, facilitating, and collaborative. He is participatory because he wants to involve everyone so they feel a part of the process. He

facilitates by putting people in the right places and providing the resources to do what needs to be done. He is collaborative because he encourages everyone to work together and share ideas based on what is best for children.

What did the principal do specifically related to technology? He had the vision and pursued the grant when no other principal in the district was interested. He was actively involved in all aspects of the grant, including training. He expected and facilitated collaboration. He selected and fostered technology leaders. He encouraged teachers and praised them for their success and modeled the behaviors he sought in the teachers. He facilitated training by encouraging teachers to attend conferences and by supporting the masters cohort.

What other factors in the school influenced technology implementation? The culture of the school is that all the teachers are committed to hard work and are open to learn new things that will benefit the children. They told me that this is a reflection of the community which is supportive of the schools and focused on doing what is best for children. Also, Westwood is able to hire the best teachers available since there is a large pool of applicants. The level of collaboration that evolved was a key factor in the successful implementation, as was the development of key leaders. Having the first year to build relationships between faculties before moving to the new school might have been a factor.

What other leaders were influential in technology implementation? Darnell, the media coordinator at Fleetwood, was the most important leader because she shared the vision with Mr. McClure and basically wrote the grant. When the school consolidated,

she took the role of technology facilitator. She led the implementation along with other leaders such as the current media coordinator, technology facilitator, and technician. There were teachers who were strong leaders and served on the IMPACT committee, which later became the MTAC. The masters cohort developed into a cadre of technology leaders.

How did this principal become a technology leader? Mr. McClure believes that principals need to make time for their own growth. He attended the Principals Executive Program (PEP) and its Principals as Technology Leaders (PATL) program. It was through the PATL program that he saw how technology can improve teaching and learning, as well as the importance of the principal's role in the integration of technology into the instructional program. He continued to read and research effective uses of technology. He saw how technology is a tool for learning and that being a technology leader is being an instructional leader.

Limitations of the Study

Since this case study only involved one school, the purpose was not external generalization of the findings, but to gain understandings of an exemplary program. The setting for this school, as well as the principal, teachers, and students is unique; however, others should find pieces of the study that will resonate with them. The study was bounded by time, so teachers who were not involved in the grant during the entire three year period were not invited to participate. Also, I was only involved with Westwood for about five months. Though this is a unique case, there are important lessons learned that perhaps transcend locations and will benefit others in their own unique settings.

Lessons Learned by the Principal

The first lesson learned that Mr. McClure mentioned was that technology is a tool. He said that the MTAC focused on training, planning, and collaboration, not just the technology. So the staff realized from the beginning of the initiative that their focus needed to be on improving instruction and that the technology would be a tool for doing that. They learned to use the technology when it was appropriate. The teachers said that technology is a powerful tool because it made learning interactive, addressed different learning modalities, helped to differentiate instruction, and increased student motivation. Therefore, it became a tool the teachers and students used on a daily basis.

A related lesson learned was that the focus always needs to be on ways to reach children and help them learn. When I asked Mr. McClure why he was interested in applying for the grant, he replied, "I got enthused because it was another way of addressing instruction." He said, "We have to find ways to better do things." In their interviews, the Westwood staff emphasized their commitment to doing what is best for children. They saw the technology as a tool for increasing student achievement. They also saw it as preparing students for a technology literate world.

Mr. McClure felt that an important lesson was that you need to be clear about your vision and share it with staff and the community. He shared his vision with the leadership teams and allowed them to help share it with the staff and community. Understanding the vision and being part of the process of developing it helped to create buy-in. McClure shared decision making with the leaders who gathered input from the

staff. He was always clear about the direction of the grant and what he expected from the teachers. Together they worked to achieve the vision.

Mr. McClure felt an important lesson is to base your plans on needs assessments. The MTAC administered needs assessments to the staff in order to determine the training that was needed. Teachers self-assessed their technology skills and maintained records of their training and progress. Grade level teams assessed their progress in learning to collaborate. McClure used reflective thinking himself and with teachers to self-assess and for self-efficacy. He gave the faculty time to assess the first year of grant implementation and planned the next steps based on an analysis of their feedback.

Mr. McClure knew that an important lesson is to always have the desire to do your best. He modeled this and made it an expectation of the staff. The teachers told me many times that they wanted what was best for the students and that in order to do that, they had to be the very best they could be. Mr. McClure helped teachers grow by listening to them, encouraging, and praising them, and providing the resources they needed to do their jobs. He demonstrated his confidence in the teachers and because of his belief in them, they did their best.

Mr. McClure said, that ". . . collaboration and team work, putting our minds together for a common cause and purpose, to me that was the number one lesson that we really learned from the initiative." He learned to create ways to develop and foster collaboration such as establishing common planning times for grade levels and creating leadership teams. He found this central to the success of the grant. McClure said, "Collaboration is powerful at all levels whether it's student and teacher or teacher and

administrator. We focused mainly on collaboration among teachers to make the initiative successful." Mr. McClure and the teachers all stressed how much they learned from each other. They shared best practices and encouraged one another. McClure said, "Collaboration is key and you have to create ways to develop and foster it. You can't mandate collaboration."

Another lesson Mr. McClure stated was to be open to change. He said, "Change is hard." He went on to describe one teacher who did not want the grant if it meant change. She said, "I'm going to try my best to accept change in a positive manner. I'm not good at it." He said that other teachers helped her and seeing the benefits of technology use convinced her that the change was a good thing. He helped the hesitant teachers by listening to them and giving them encouragement. The MTAC modeled positive attitudes. They knew that incorporating technology into teaching requires changing methods and the role of the teacher. Putting technology into the hands of students allows you to be more of a guide and facilitator, rather than dispenser of learning. The training sessions focused on instruction, which helped teachers change their thinking. Collaboration helped to change their practice.

An important lesson was to be a risk-taker and learn from your experiences. Mr. McClure set the tone for risk-taking by establishing a non-threatening environment. He expected the teachers to explore on their own and share what worked well. His positive attitude fostered taking risks. He and the MTAC modeled risk taking and sharing ideas. He said, ". . . developing risk takers is very important and helping them to continue their growth, to be lifelong learners." When I asked what advice McClure had for others who

might undertake a technology initiative, he said, “Be a risk taker and learn from your experiences.” The faculty agreed that this was one of the reasons they grew as technology using teachers.

In order to take risks, you need to create a non-threatening environment where you and the staff can express ideas and opinions. This was another lesson Mr. McClure shared. He and the MTAC were careful to allow teachers to grow at their own rates. They encouraged, but did not push the teachers. This allowed teachers to learn and explore with the technology without feeling overwhelmed or threatened. By learning to collaborate, they felt comfortable asking each other for help. Support from the specialists and technician also helped to create a non-threatening culture where teachers felt comfortable taking risks.

One of the first lessons learned was to develop your teachers as leaders and give them responsibilities. Mr. McClure did this at the time the grant was written by asking for input as time allowed. Once the grant was funded, he identified an IMPACT team and allowed them to develop as technology leaders. He said this was critical to successful implementation. The MTAC believed in the possibilities of the grant and became the proponents who modeled a positive attitude. They were an important part of the grant process and, according to McClure, were largely responsible for the buy-in of teachers. Mr. McClure said, “Develop your teachers as leaders because they have so much to offer.” That was important advice, he thought, for undertaking any initiative.

Mr. McClure learned the importance of trusting your staff and involving everyone in the process of implementation. The teachers mentioned the word trust many times

when discussing McClure's leadership. They appreciated the fact that he trusted them to take the technology and explore ways to use it on their own. They liked the freedom to experiment with classroom applications. Only two faculty, one of whom was a beginning teacher, wanted more direction in how to use the technology. Most of the interviewees commented on McClure's trust in them. They said that his trust motivated them to work hard and do their best. The teachers wanted to make him proud. Mr. McClure said that he trusted his staff because they wanted the best for children. He involved them in the grant process from the beginning, which he said contributed to buy-in. He shared his vision with the technology leaders and trusted them to share in decision making.

Sharing his vision and sharing decision making was another important lesson Mr. McClure learned. He strongly believed in developing teachers as leaders. He attributed the success of the grant in part due to putting key people in key roles. McClure chose the technology leaders and created the MTAC. He knew that he needed their input and involvement in making decisions for their continued commitment to the grant. He said that the MTAC felt comfortable openly discussing issues. He said when sharing decision making responsibilities, they would strive for consensus. On rare occasions they had to vote. McClure offered his opinions, but allowed for a democratic process. Once a decision was made, everyone supported it. It was important for the MTAC to be united when communicating with the rest of the faculty.

Mr. McClure said that the principal needs to be willing to make decisions when needed. Though he considered himself a co-leader of MTAC, he said he would make the final decision if the issue could not be resolved. McClure said that rarely happened

because they openly discussed issues and would work out their differences to reach a compromise. McClure said he handled all issues relating to personnel and was not at liberty to discuss those with teachers.

Mr. McClure knew that people are not always going to agree with you. The lesson he shared was to not take it personally. He created a non-threatening environment where teachers felt comfortable discussing issues. He also had an "open door" policy where teachers felt they could share their thoughts and feelings with him. Mr. McClure set the tone of caring in the school which seemed to prevail among the faculty. The teachers appeared to be sensitive to the feelings of their colleagues. The professional culture of the school allowed for open discourse and democratic decision making.

Mr. McClure said it is important to not let your ego get in the way of what you want to accomplish. When asked why he thought his leadership style is successful, he replied that one reason is that he feels secure with himself and with being a principal. He did not feel threatened. McClure said, "I told my staff I can't let my ego get in the way of decision making and listening to people. Egos aren't all bad, but it is if it interferes with decisions. I consider this our school, not my school." He went on to say that ego should be used to help others achieve goals, not for self-fulfillment.

Another important lesson, Mr. McClure said, is the importance of being thoughtful about how you react to situations. This takes self-discipline. He explained that you need to consider all aspects and ramifications and think of how the reaction will affect the school. McClure said that you can not let your personal feelings get in the way of trying to be thoughtful. He explained that it is also important for the principal to help

those who come for advice to see all aspects and ramifications of the issue. McClure said, "You can undo a lot of good things you have done if you don't take time to think through the situation before you react."

Mr. McClure recognized the importance of being genuine and letting your staff know you care. This resulted in the staff knowing they could talk with him at any time. His "open door" policy was intentional in order to facilitate communication. McClure said that the teachers will know if you are genuine or not. He said, "They have to know that you are listening and that you care about what they think." The teachers described times when Mr. McClure demonstrated that he cared about them as people, not just teachers. Many said that he loved them and would do anything to help them. Because of this, they wanted to do their best to make him proud.

Be secure with yourself and others was a lesson Mr. McClure discussed. He said you have to be comfortable being able to communicate without being threatened. He modeled this so his staff would learn to collaborate. He said you have to be secure as a principal to help develop teacher leaders and share decision making. He said that you need to be able to depend on your people, everyone involved with the school community, because they are vital to the success of the school.

Mr. McClure said that it is extremely important to be a good listener and communicator. He encouraged his staff to come to him with concerns, issues, or to discuss pedagogy. Problems were solved before they had a chance to escalate. McClure spent most of his day out in the building and in classrooms. He made a point of being accessible to teachers. McClure's personable and caring manner encouraged

communication. Modeling good listening and communication skills helped teachers learn how to collaborate.

Mr. McClure emphasized the importance of maintaining a positive, "can do" attitude. He said, ". . . the personality of the principal plays an important role in the school being positive or negative in the way they look at things." The principal sets the tone for the school. He and the technology leaders encouraged and praised the staff for the progress they made. They celebrated their successes. The teachers told me he thought they were the best school around and they believed it. They knew Mr. McClure believed in them, so they believed in themselves.

Mr. McClure believed in the practice of reflective thinking and the importance of promoting it with faculty. He saw it as an effective way to grow professionally. McClure modeled reflection and expected it from the faculty. They were required to keep reflective logs of their technology use. He created opportunities for the faculty to reflect together. McClure said that sometimes it was informal such as talking about their practice and related philosophies. He believed that his teachers wanted to improve and that this was a way to do that. He also kept a journal, but not on a regular basis. Reflective thinking became a habit of mind for the Westwood faculty.

Reflection was a way to self-evaluate which McClure said was an important lesson learned. "We all have room to grow," he said. Teachers evaluated themselves individually and collectively. Teacher teams evaluated how they used technology and how well they collaborated. They also evaluated themselves as a faculty. McClure

created opportunities for the faculty to reflect on their progress with the grant and to identify areas of needed improvement. He self-evaluated for his own growth.

An important lesson is to celebrate your accomplishments. Implementing a systemic initiative is time intensive and very hard work. Mr. McClure knew the importance of recognizing your accomplishments and rewarding yourself. He felt these celebrations provide motivation to keep the momentum going. It also validated the belief of his teachers that he truly cared for and appreciated them.

Mr. McClure said it is important to allow time for fun. During the consolidation of the two schools, he and the social committee planned fun activities for the faculties to get to know each other better. This set the foundation for learning to collaborate and build teams. Activities such as cook-outs and movie nights were not only enjoyable, but helped to build community. The faculty had a party to celebrate getting laptops. They intentionally planned times to relax, have fun, get to know each other better, and to celebrate their successes.

Lessons Learned by Teachers

The Westwood teachers identified some of the same lessons learned as the principal; however, their explanations reflected a different perspective. There were additional lessons teachers thought would be helpful to others who are considering a similar technology initiative. The first lesson the teachers were quick to tell me is to be prepared to work hard and devote extra time. The first year they had over 100 hours of training, mostly held after school and in the summer. There has to be a large commitment to be willing to devote that kind of time and effort. The teachers all said they worked

harder than ever before, but they stressed that the benefits for students made it worthwhile. Teachers feel their teaching is much stronger now because of using technology.

Teachers said that in order to undertake an initiative that involves systemic change, you must be open-minded and willing to take risks. They commented on the difficulty of change, especially when it involves learning new skills and changing the way you teach. They said that Mr. McClure and the technology leaders modeled the expectation of taking the technology and exploring effective ways to use it. The non-threatening environment encouraged their risk taking.

Teachers are known to be flexible, but the Westwood teachers said that flexibility is very important in learning to use technology. First, they had to be flexible in their thinking to be open to new ideas. They had to be flexible in their planning and teaching to incorporate their new knowledge and skills. Any time you use technology you have to be flexible enough to have a back-up plan in case the technology does not function properly. There will always be those times! The teachers also learned to be flexible in their collaborative work. Working in a team requires flexibility of your time, your work habits, your ideas, and the way you relate to others.

Like Mr. McClure, the teachers iterated the need to be positive. The technology leaders and McClure modeled a positive attitude. This kept the teachers motivated even when the training became overwhelming at times. Ms. Gamble, a first grade teacher, said that you have to think that you can do it. As the teachers began to see the advantages of using technology, they became excited. That excitement was contagious and fed the

positive spirit of the school. The celebrations and fun activities that were planned helped teachers relax and focus on the benefits of their hard work.

I heard over and over that you have to be patient with yourself and others. This was a lesson the teachers found very valuable. Ms. Taylor, teacher of academically and intellectually gifted students, said, "You have to deal with change and that's not always easy. You need to be patient with yourself and those around you." As Ms. Bowers, the media coordinator said, "You can't do everything at once." It takes a lot of time to learn the skills and feel comfortable using the technology. Ms. Brown, a third grade teacher, said, "There is always growth even if it seems slow." The technology leaders modeled patience with the rest of the staff. They realized that not everyone embraced the technology as they did. They encouraged teachers to slow down and be patient with themselves. Ms. Taylor, teacher of academically and intellectually gifted students, summed it up when she said, "Above all, be patient. It's a wild ride, but it will be worth it."

The teachers said that they learned the importance of being willing to ask for help. Ms. Brown, a third grade teacher said, "Respect the strengths of others and use them to learn. Collaborate with others, on your grade level and across grade levels. It's a learning experience for everyone and you must be willing to learn from others."

All the teachers said that training was integral to the success of the grant. They said an important lesson is to take advantage of training opportunities. Even though this meant spending extra time at school, they felt it was definitely worth it. The teachers said they would not have been able to learn all that was needed on their own. They said that

the training should include follow-up and time to practice. They felt empowered that the training was not mandated, but chose to attend most sessions anyway.

The technology leaders felt that one reason teachers bought into the grant was because the focus was always on instruction, not technology. This was an important lesson they learned. Teachers were continually looking for better ways to reach students and found that technology helped them to differentiate instruction. The staff wanted to be the best they could be and saw technology as a way of enhancing their teaching and increasing student achievement.

Teachers said that support was critical to maintaining a positive attitude and to their progress in learning how to use technology effectively. The lesson learned was to support each other. Ms. Hutchinson, a fifth grade teacher, said, "Don't be afraid. Ask a lot of questions. Find a buddy. Find a good friend that's willing to struggle through it with you." She went on to say that just like trying anything new, there are aches and pains. But, she said, "It's a whole lot more fun if you can share that with somebody along the way." Ms. Gamble, a first grade teacher, said, "Sometimes you have to swallow your pride and say that you don't know how to do this and please show me. Just be humble. It's being a lifelong learner." The teachers said that the technology leaders supported them by keeping them focused and encouraging them. The technician supported by teaching the staff how to troubleshoot minor problems with computers. He kept all the equipment in working order. Mr. McClure supported the staff by providing the resources they needed and praising them for their progress.

The focus on collaboration was evident in all interviews. Teachers emphasized the lesson of needing to collaborate and share best practices. They all said this was critical to the success of the grant. Collaboration provided support, modeling, and sharing ideas of effective uses of technology to support instruction. This was as important to the teachers as the formal training. Technology leaders collaborated through the MTAC and teachers collaborated through grade level teams. The team of specialists collaborated together and with grade level teams. Teachers also collaborated across grade levels. Thus, ideas were shared and best practices were modeled throughout the school, contributing to the growth of all. The staff learned to learn from each other.

Mr. McClure encouraged and facilitated collaboration by allowing time for teams to meet during the school day. The teachers said this is an important lesson. Creating a master schedule of planning times gave teacher teams time to collaborate on planning, evaluating, and discussing issues of concern or interest. Collaboration was an expectation of Mr. McClure. Teachers had been trained and were required to keep minutes of their meetings and to reflect on their progress in being able to collaborate.

Pace yourself so you do not move too fast was one of the most important lessons learned by the teachers. Ms. Bowers, the media coordinator and one of the technology leaders said, “People have to be ready for change. The faculty has to be ready. You can’t force people.” She went on to say,” You have to know the starting point for everybody and bring them from where they are.” Some of them are going to be the leaders and others are going to embrace the innovation more slowly. Leaders planned the training to be developmental in order to minimize frustration. Since most sessions were optional

teachers could pace themselves. Their advice to others is to move slowly. Teachers needed scaffolding from the leaders and each other. They appreciated the time to practice and explore on their own and to reflect on their practice before receiving a new piece of equipment.

Teachers realized that learning about technology is a process, not an end. Most knew this from the beginning, but the lesson became more evident as they participated in the training. Teachers realized that learning about effective uses of technology would be an ongoing process and would continue beyond the end of the grant. Faculty are discovering ways to continue learning about instructional technology without the funding for formal training, while pursuing other grant opportunities. Because of rapid changes in the technology field, they know that there will always be the need to stay current in their thinking and training.

Another lesson learned by the teachers that was critical to the success of the initiative was to reflect on your practice, collaboration, and training. Reflection by individuals, as well as teams, was expected. Teachers had training in learning how to reflect. Several teachers learned about the process of reflection while working toward National Board Certification. All teachers said that reflection has improved their practice and is now a habit of mind.

It was interesting that, in addition to Mr. McClure, the teachers also felt an important lesson is to identify leaders early on and develop them. They recognized that Mr. McClure had put the right people in the right positions at the time the grant was awarded. They depended on these leaders for guidance and encouragement. Teachers

gave input to the MTAC, but were willing to leave the decision making up to the committee. The leaders were sensitive to the needs of the teachers and supported them in many ways.

Teachers said that leaders need to be motivated and motivating. They knew that the leaders worked hard to plan and guide the initiative, above and beyond their normal duties. Their willingness to develop as leaders reflected their belief in the possibilities of technology integration. They, in turn, motivated teachers with their enthusiasm and support.

Teachers expressed that it is important for leaders to be positive models. The Westwood technology leaders, including Mr. McClure, modeled a positive attitude, as well as best practices. They were sensitive to the developmental stages of teachers and were patient with their expectations. Modeling patience helped teachers to become patient with themselves and maintain excitement and enthusiasm for the initiative. Many of the teachers emphasized that attitudes were critical to the success of the grant. They also said that the Westwood staff is extremely hard working and dedicated to doing their best for students. When hiring new teachers, they said that attitude and willingness to work hard are as important as credentials. They are careful to hire strong teachers, but want the best fit for Westwood. That includes a positive attitude.

It was critical that the technology leaders learned the lesson that they needed to allow staff to move at their own rates. Ms. Taylor, teacher of academically and intellectually gifted students, said, “It’s important to listen to your coworkers and the administrators, especially for undercurrents of frustration or even excitement.” The

leaders were sensitive to the varying levels of comfort with technology and tried to allow everyone to progress at their own rate. They did this by not mandating training sessions except for when new equipment was being given. The teachers had the freedom to pace themselves.

Ms. Gambill, the technology facilitator, said, "Listen to the teachers. Let all the voices be heard." This was an important lesson in gaining buy-in from teachers. Mr. McClure involved everyone at the onset of the grant and fostered a climate of honest discourse. Ms. Reavis, a fifth grade teacher said, "Don't be afraid to voice your concerns." The leaders tried to listen carefully to the staff. Ms. Gambill also said, "The success of the plan has been because the teachers' voices have led the program."

Teachers, along with Mr. McClure, felt an important lesson was that leaders need to set clear expectations. Mr. McClure voiced his expectations and the MTAC did the same. Though they allowed teachers to progress at their own rates, they expected to see growth in the use of technology in the classroom, as well as collaboration and reflection.

In talking about technology leadership, the teachers said they learned that leaders need to communicate with staff. The MTAC asked for input from faculty before making major decisions. They also communicated their work verbally and by distributing minutes of the meetings. However, when evaluating the first year of the grant, the faculty realized that communication was an area that needed improvement. Intentional efforts to foster two-way communication are needed and the staff are working hard to ensure effective communication throughout the school.

A very important lesson learned early on in the grant implementation was that a clear vision is needed, but it must be allowed to evolve. Mr. McClure and Ms. Darnell had the initial vision and communicated it to the faculty. The MTAC took the vision and began to develop a plan to operationalize it. They put a clear plan in place, but as they reflected along the way, they allowed the plan to evolve. Later in the process, the masters cohort developed a vision statement and, with input and approval from the faculty, it was adopted. I suspect their continuous reflection that feeds back into their vision and plan will mean that they will revisit their vision periodically.

The MTAC felt that training should be based on needs assessments. This is a lesson they would share with others. They wanted the training to be developmental, so needs assessments were necessary to see where the faculty were in terms of skills and knowledge. One caveat to this was mentioned by some teachers. They explained that when dealing with technology, teachers often are not knowledgeable enough to know what they do not know. Consequently, teachers felt that sometimes the technology leaders had to plan training that they knew the faculty needed, but of which they were not aware.

Several teachers said that a lesson would be that training should be optional. They had two reasons for this. First, they felt empowered by making the decision to attend or not attend, based on their needs. Secondly, they knew when they needed more time to practice before trying to learning a new skill. Being in control of their own learning was important to them. It allowed them to progress at their own rates and minimized frustration.

The faculty really appreciated receiving remuneration for the extra time involved in training after school and during the summers. The lesson learned was to offer stipends to faculty for time spent in training that extends beyond the school day if possible. They said it was a nominal amount, but would at least pay for gas or babysitting. They explained that it was not so much the money that was important, but feeling valued for their dedication to the initiative.

An important lesson to share is to give out equipment incrementally. This provided time for the teachers to practice and feel comfortable with the technology before being introduced to something new. Though the teachers still felt overwhelmed at times, they said that dispensing all the equipment at one time would have been very frustrating and discouraging. They needed to learn in small steps and build upon previous knowledge.

Mr. McClure and the technology leaders allowed time for practice in a non-threatening environment. The teachers said this was a critical lesson. They felt comfortable asking for help and slowing their learning pace when needed. They appreciated the freedom to explore using the technology in their classrooms and felt their expertise as teachers was validating. Again, practice time was needed before new skills were taught.

The need for technical support must not be underestimated and is a valuable lesson learned. The technician's position has been so critical that the administration found a way to keep it after the grant was over. If the equipment is not maintained and

becomes unreliable, it will not be used. Also, the technician provided "just in time" technical support and training.

Making good purchasing decisions is important. The Westwood faculty learned to base equipment purchases on needs and research. Ms. Miller, a fourth grade teacher, said, "You need to get opinions and recommendations and research what you are purchasing because you can waste a lot of money. You should poll the teachers about what they need." She went on to say that purchases should be based on what teachers need to teach the curriculum. Sometimes cutting edge technology is seductive, but the deciding factor should be whether or not it supports the curriculum.

The MTAC decided to purchase laptops first and allow teachers to use them outside of school. This is a lesson they recommend. Teachers were trained to use the laptops and encouraged to use them for personal as well as professional purposes. This gave them ownership and multiple opportunities to feel comfortable with the technology. Having a laptop was a way to get the faculty excited about the initiative. Then they began to think of creative ways to use them for instruction.

The faculty said that a technology initiative of this magnitude required a substantial budget. The lesson is that financial resources are necessary. The school district normally can not afford to provide the funds necessary for purchasing equipment and providing for training at this level without outside resources. Now that the grant is over, the Westwood faculty is concerned about maintaining the equipment they have and staying current with new technologies. They are pursuing new grants in order to keep moving forward.

With all the extra time and effort involved in implementing a systemic change, it is easy to forget to make time for fun. However, the teachers told me this was an important lesson. They planned activities for relaxing and enjoying fun times together. Then they were refreshed and able to continue their work with a positive attitude.

When asked about lessons learned, the teachers told me that it is important to celebrate successes. These celebrations kept them focused and motivated to continue their efforts. It also contributed to establishing community and improving communication.

The teachers said that change is not easy and can not be forced. That is often a hard lesson to learn. The teachers all commented on the extra work and time involved, but were quick to say that it is worth it. They said they would encourage others to take advantage of any opportunities for a technology initiative. They believe the effect on teaching and learning is worth it.

Implications for Further Research

It would be interesting to look at other schools that received IMPACT grants to see how the principal there impacted the technology initiative. A comparison of leadership styles and outcomes of the grant could provide further insights into the role of the principal as a technology leader. Other questions of interest that arose from this study are:

1. How do you maintain a hard working staff and prevent burnout?
2. How effective is a leadership style such as Mr. McClure's, where teachers are given freedom to explore, with a staff who are less intrinsically motivated and self-directed?

3. How does the culture of the community affect the motivation of staff?
4. How do you foster caring and trust in beginning principals for building collaboration and shared leadership?

Final Thoughts

This study looked at the impact of leadership on technology integration at Westwood, but the findings extend beyond technology. What strikes me most about the findings is that, for the most part, they can apply to any type of innovation. This study, as well as innovation in general, is about change. One of the teachers told Mr. McClure that change is hard. She stated that she would try her best to accept the changes in a positive manner, but she knew she was not very good at it. Integrating technology involves not only learning the technology, but changing the way you teach. Change is a difficult process and the principal's attitude to it is critical to successful implementation.

In his book, *Leading in a Culture of Change*, Michael Fullan (2001) offers insights, strategies, and theories for leadership in a culture of complex change. He defines five components or capacities of leadership necessary for positive change: moral purpose, understanding the change process, building relationships, knowledge creation and sharing, and coherence making.

Moral purpose, Fullan (2001) explains, is based on the intention to make a positive difference in society. Mr. McClure's moral purpose was to do what is best for students. That anchored his vision and his work and was communicated to the staff. This moral purpose was cultivated and shared by the teachers. It undergirded the change process at Westwood.

Fullan (2001) stated the need for understanding the change process. He said it can not be controlled, but needs to be led. Mr. McClure understood that the teachers could not be forced to integrate technology, but needed to progress at their own rate. He modeled the behaviors he sought in them and created a culture of change by encouraging risk-taking. McClure had the vision and inspired the staff to change through support and encouragement.

Fullan (2001) believes that building relationships is critical to successful change. Mr. McClure allowed teachers to incorporate technology as they were comfortable in using it. He encouraged their growth. McClure built community through developing teachers as leaders and creating opportunities for teachers to train together and also to enjoy socializing.

Knowledge creation and sharing make up the fourth component of leadership for change according to Fullan (2001). Mr. McClure was actively involved in all aspects of the initiative, but cultivated technology leaders. He trained along with the faculty and encouraged teachers to give input to the MTAC. He facilitated the masters cohort as a way of developing and investing in a group of technology leaders. He encouraged teachers to share ideas and knowledge within the school and at state and national conferences. He developed teachers as leaders by recognizing their potential, sending them to the appropriate professional development sessions and having them conduct sessions upon their return.

The last component that Fullan (2001) identifies for leadership to affect change is that of coherence making. Mr. McClure kept the initiative grounded in the curriculum

and instruction. The technology plan was part of the overall school improvement plan. The goals of the vision were clear, as were McClure's expectations. The result was that technology integration was institutionalized.

Westwood teachers accepted the change and worked hard to make it happen because they trusted the leadership and knew it would benefit students. Now they are committed to the vision. As Mr. McClure said, "When the grant is over, the model will continue."

CHAPTER VIII

THE GRANT IS OVER, BUT THE VISION CONTINUES

Epilogue

Westwood's story will continue. As Ms. Bowers, the media coordinator told me, "The money is gone, but the vision is not". They are now a model for the school district and the local board of education is hoping to replicate the model in all other schools. There is the concern at Westwood that while they want other schools to have the same resources, they need to continue to stay on the cutting edge. Ms. Ashley, a kindergarten teacher, said that the teachers wanted to succeed so that they could show the need for it everywhere. She said, "We are doing this so it can help others." Apparently Westwood was successful in demonstrating the need. Funds must to be allocated to Westwood so their progress will continue and they will remain a model technology school. It will be a financial challenge for the district to provide the same equipment for all schools and continue to fund Westwood for upgrades and additional new technologies and training. The teachers said that they do not want to be punished for being innovators and can not afford to wait for the other schools to catch up. They are eager to continue to lead the way.

The MTAC is focused on sustainability and is already searching for additional grant opportunities. This may be challenging since most grants are for equipping low technology schools. At the level of integration that Westwood has attained, they may be

more successful looking at grants supporting areas of the curriculum, rather than technology grants. The current principal and the staff are committed to continued growth and are poised to stay current with new technologies and teaching strategies for integrating them into the curriculum.

Technology is a powerful tool for instruction, but it is only as effective as the efficacy of the teachers. Westwood teachers have focused on pedagogy first and have found effective ways to use technology for student learning. The school culture supports change now that the staff sees themselves as a collaborative learning community. Their focus remains on what is best for the children and they believe that includes effective uses of instructional technology.

As I turned off my tape recorder for the last time and packed my materials, I surprised myself by having ambivalent feelings about leaving. I was relieved to have completed my data collection, pleased with the results, and eager to begin making sense of all the information. Yet, there was a feeling of sadness that I had not anticipated. I felt a part of Westwood and was entrenched in its culture of hard work and dedication to children. The positive attitude of the principal and staff was contagious. It had felt good to spend time with these enthusiastic, dedicated teachers and students.

As I stopped to say good-bye to the participants, the teachers were scurrying down the halls and there was an air of excitement throughout the building. They were preparing for a fall festival and expecting most of the community to come join in the fun. This was the annual fund raiser of the year which now, without the grant, is more

important than ever. I am confident they will raise a significant amount of money since they tell me the community is very supportive of the schools.

It has been my pleasure to tell Westwood's story. It is truly an exemplary technology school. I know its future is bright because the staff is committed to making it the best it can be. They will find ways to sustain the technology integration and to continue to innovate because they want what is best for the children. As I drive away, I think how fortunate I am to have experienced this extraordinary school tucked away in the North Carolina mountains.

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Appendix A

Outline of Presentation to Westwood Faculty

Investigation of an Exemplary Model of Instructional Technology Integration

Jean Camp

Doctoral Student

UNCG

Research Study - Goals

To investigate:

- **Why Westwood is considered an exemplary model of technology integration**
- **Technology implementation process**
- **Results of technology integration**
- **Principal's role in the implementation process**

Research Study - Procedures

Data will be collected through:

- **Interviews**
- **Observations**
- **Examination of school documents**

Confidentiality of data will be maintained by

▪Use of pseudonyms for teachers and incoming principal if desired. Outgoing principal has given permission to use his name

▪School district has given permission to use name of school (positive study)

▪Data stored securely

▪Data destroyed after 3 years

Research Study – Participant Selection

Participants must:

■ Have participated in the technology implementation from the onset

■Be willing to be interviewed (approximately 1 hour)

■Be willing to be observed in the classroom (1/2 day)

Research Study - Benefits

To Participants:

■Best practices will be shared

■Opportunity to reflect on success of program

To Society:

■Best practices will be shared

■Practice can be improved

Research Study - Risks

There are minimal risks involved if participant chooses to disclose information that makes him/her uncomfortable.

Participants may withdraw from study at any time with no penalty.

Research Study - Questions

■Feel free to ask questions at any time:

Jean Camp at

Jean_camp@uncg.edu or

(336) 286-0668

Appendix B

National Educational Technology Standards – Administrators (NETS-A)

International Society for Technology in Education, 2004

I. LEADERSHIP AND VISION.
Educational leaders inspire a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision. Educational leaders:

A. facilitate the shared development by all stakeholders of a vision for technology use and widely communicate that vision.
B. maintain an inclusive and cohesive process to develop, implement, and monitor a dynamic, long-range, and systemic technology plan to achieve the vision.
C. foster and nurture a culture of responsible risk-taking and advocate policies promoting continuous innovation with technology.
D. use data in making leadership decisions.
E. advocate for research-based effective practices in use of technology.
F. advocate on the state and national levels for policies, programs, and funding opportunities that support implementation of the district technology plan.

II. LEARNING AND TEACHING.
Educational leaders ensure that curricular design, instructional strategies, and learning environments integrate appropriate technologies to maximize learning and teaching. Educational leaders:

A. identify, use, evaluate, and promote appropriate technologies to enhance and support instruction and standards-based curriculum leading to high levels of student achievement.
B. facilitate and support collaborative technology-enriched learning environments conducive to innovation for improved learning.
C. provide for learner-centered environments that use technology to meet the individual and diverse needs of learners.
D. facilitate the use of technologies to support and enhance instructional methods that develop higher-level thinking, decision-making, and problem-solving skills.
E. provide for and ensure that faculty and staff take advantage of quality professional learning opportunities for improved learning and teaching with technology.

III. PRODUCTIVITY AND PROFESSIONAL PRACTICE.
Educational leaders apply technology to enhance their professional practice and to increase their own productivity and that of others. Educational leaders:

A. model the routine, intentional, and effective use of technology.
B. employ technology for communication and collaboration among colleagues, staff, parents, students, and the larger community.
C. create and participate in learning communities that stimulate, nurture, and support faculty and staff in using technology for improved productivity.
D. engage in sustained, job-related professional learning using technology resources.
E. maintain awareness of emerging technologies and their potential uses in education.
F. use technology to advance organizational improvement.

IV. SUPPORT, MANAGEMENT, AND OPERATIONS.
Educational leaders ensure the integration of technology to support productive systems for learning and administration. Educational leaders:

A. develop, implement, and monitor policies and guidelines to ensure compatibility of technologies.
B. implement and use integrated technology-based management and operations syste
C. allocate financial and human resources to ensure complete and sustained implementation of the technology plan.
D. integrate strategic plans, technology plans, and other improvement plans and policies to align efforts and leverage resources.
E. implement procedures to drive continuous improvement of technology systems and to support technology replacement cycles.

V. ASSESSMENT AND EVALUATION.
Educational leaders use technology to plan and implement comprehensive systems of effective assessment and evaluation. Educational leaders:

A. use multiple methods to assess and evaluate appropriate uses of technology resources for learning, communication, and productivity.
B. use technology to collect and analyze data, interpret results, and communicate findings to improve instructional practice and student learning.
C. assess staff knowledge, skills, and performance in using technology and use results to facilitate quality professional development and to inform personnel decisions.
D. use technology to assess, evaluate, and manage administrative and operational systems.

VI. SOCIAL, LEGAL, AND ETHICAL ISSUES.
Educational leaders understand the social, legal, and ethical issues related to technology and model responsible decision-making related to these issues. Educational leaders:

A. ensure equity of access to technology resources that enable and empower all learners and educators.
B. identify, communicate, model, and enforce social, legal, and ethical practices to promote responsible use of technology.
C. promote and enforce privacy, security, and online safety related to the use of technology.
D. promote and enforce environmentally safe and healthy practices in the use of technology.
E. participate in the development of policies that clearly enforce copyright law and assign ownership of intellectual property developed with district resources.

Interstate School Leaders Licensure Consortium Standards (ISLLC)

Council of Chief State School Officers (1996)

Standard 1	A school administrator is an educational leader who promotes the success of all students by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by the school community.
Standard 2	A school administrator is an educational leader who promotes the success of all students by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning and staff professional growth.
Standard 3	A school administrator is an educational leader who promotes the success of all students by ensuring management of the organization, operations, and resources for a safe, efficient, and effective learning environment.
Standard 4	A school administrator is an educational leader who promotes the success of all students by collaborating with families and community members, responding to diverse community interests and needs, and mobilizing community resources.
Standard 5	A school administrator is an educational leader who promotes the success of all students by activing with integrity, fairness, and in an ethical manner.
Standard 6	A school administrator is an educational leader who promotes the success of all studens by understanding, responding to, and influencing the larger political, social, economic, legal, and cultural context.

Appendix C

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

CONSENT TO ACT AS A HUMAN PARTICIPANT: LONG FORM

Project Title: Investigation of an Exemplary Model of Instructional Technology Integration

Project Director: Jean Camp

Participant's Name: _____

DESCRIPTION AND EXPLANATION OF PROCEDURES:
The purpose of the study is to investigate the factors involved in the successful implementation of an instructional technology initiative, including the process, results, and the role of the principal. Data will be collected through individual interviews, classroom and meeting observations, and examination of school documents. Participants will include the outgoing and incoming principals and randomly selected faculty who were part of the implementation process.

RISKS AND DISCOMFORTS:
There are minimal risks to participants involved in the study. Participants might disclose something that would make them uncomfortable. Risks can be minimized through anonymity. Participants may choose to have pseudonyms used.

POTENTIAL BENEFITS:
Results of the study will be available to faculty. Included will be insights into the implementation process, as well as best practices for technology integration. The study will provide models for educators to inform and improve their practice.

COMPENSATION/TREATMENT FOR INJURY:
N/A

By signing this consent form, you agree that you understand the procedures and any risks and benefits involved in this research. You are free to refuse to participate or to withdraw your consent to participate in this research at any time without penalty or prejudice; your participation is entirely voluntary. Teachers may choose to have their privacy protected by requesting not to be identified by name as a participant in this project. Pseudonyms can be used to ensure anonymity of participants. However, permission has been granted to use the name of the school, the school district, and the outgoing principal. A pseudonym may be used for the incoming principal if he chooses not to use his real name. All data and research records will be stored in a locked file cabinet at the home of the researcher and destroyed 3 years after the completion of the study. Computer files will be password protected. Tapes will be erased, digital data deleted from the researcher's hard drive, and printed data will be shredded. Your participation will require approximately 6 hours of your time over several months.

The University of North Carolina at Greensboro Institutional Review Board, which insures that research involving people follows federal regulations, has approved the research and this consent form. Questions

regarding your rights as a participant in this project can be answered by calling Mr. Eric Allen at (336) 256-1482. Questions regarding the research itself will be answered by Jean Camp by calling (336) 286-0668. Any new information that develops during the project will be provided to you if the information might affect your willingness to continue participation in the project.

By signing this form, you are agreeing to participate in the project described to you by Jean Camp____.

_____ _____

Participant's Signature* Date

Appendix D

Interview Protocol

1. Tell me the story of Westwood's technology initiative.
2. What was your role in the technology grant?
3. What makes the technology initiative here exemplary?
4. How is technology being used by students and staff?
5. How did you get to this point of technology integration?
6. Describe the professional development for the grant implementation.
7. What is working well and not so well?
8. What are the outcomes of the technology grant?
9. What were the challenges during the grant implementation?
10. What is different now from three years ago?
11. What are the lessons learned?
12. Who are the effective technology leaders in the school? What makes them effective?
13. What was the role of the principal in the technology initiative?
14. What was the effect of his leadership?
15. How would you describe his leadership style?
16. What is the main goal of using technology?
17. What is the school's vision? How was it developed?

18. What is the technology plan? How was it developed? How does it relate to the school's vision?
19. What advice would you have for other schools who might be interested in beginning to launch a systemic technology initiative?
20. Is there anything else you would like to tell me?